

## Applicant Checklist For Low, Medium & High Volume Driveways and Local Roads Highway Occupancy Permit

The following checklist has been prepared to aid in the preparation and submission of plans for a Highway Occupancy Permit Application other than a minimum use driveway application. These guidelines are not all encompassing nor are they applicable to every application. (References: 67 Pa. Code, Chapter 441; PennDOT Publication 282; and as noted below).

### General

- Project narrative
- Letter of review/acknowledgement of proposed development from Municipality (Ch. 441.3 (j))
- Land Use Questionnaire (form M-950MPC) is completed & attached (Sections 619.2 and 1105 of the Municipal Planning Code; Pub. 282, Ch. 3.3)
- Proof of submission to PHMC (MOU between PA State Historic Preservation Office and PennDOT)
- E&S Plan approved by the County Conservation District
- Estimated cost of work within Legal Right-of-way (Pub. 282, Ch. 3.6)
- Meeting minutes provided for all previous correspondence with PennDOT
- Within limits of planned PennDOT project
- Verification of PUC coordination (Title 66 of the PA Consolidated Statutes, Section 2702 (a))
- TIS/TIA required/approved/signed/sealed
- Signal plans/traffic signal study required/approved
- School Zone speed reduction permit required/approved
- Bridge/structure review/approval
- Access Covenant (form M-946) required/provided (Ch. 441.6(16))
- Drainage Release required/provided (Ch. 441.3(h))
- Permit to be recorded at the County Recorder of Deeds office (Pub. 282)
- Indemnification required/provided
- Insp. reqs: PennDOT spot/full time or consultant insp., cost considerations, reimbursement and invoicing.

### Application

- Correct fee received (Ch. 441.4)
- Permit processing, review, and inspection fees required/submitted (Ch. 441.4)
- Check is more than 6 months old (Ch. 441.4)
- Application submitted in the name of property owner (Ch. 441.3(b) and 441.5(b))
- Copy of the deed, sales agreement, or lease of property (> 15-year lease) is attached (Ch. 441.3(e)(6))
- M-950 RFO submitted if Applicant not fee owner of property
- Agent Authorization (form M-950 AA) required/provided
- Access correctly classified as low/med/high volume with (Ch. 441.1 and Pub. 282)
- Average daily traffic and broken down by type (Ch. 441.3(i)(7))
- Business Partner ID completed on application
- Existing driveways to be removed indicated on application
- All work proposed within ROW indicated on application

### General Notes

- Applicable general permit notes provided
- Typical Section notes provided
- Applicable pavement marking notes provided
- Applicable MPT notes provided
- Guiderail removal note required/provided
- R/W reference note provided (Pub. 14M, Section 2.3.(A)1)
- ADA Compliance note provided for pedestrian facilities beyond R/W
- Applicable drainage notes provided
- Applicable utility notes provided

### **Plan Presentation**

- North arrow
- Scale bar, plan view: 1"=50' or less (1"=50' and 25' preferred); details: 1"=20' or less
- Existing pavement, travel lanes, and shoulders (type & width) (Ch. 441.3(i))
- Location & type of existing/proposed highway features (guide rail, curb, drainage, signage, etc.) (Ch. 441.3(i))
- All affected utilities (all existing & proposed, aboveground & subsurface) (Ch. 441.3(i))
- Adequate topo along SR and frontage (road edges, buildings, trees, curb, sidewalks, parking, etc.) (Ch. 441.3(i))
- Dimension proposed driveway and SR if applicable (Ch. 441.3(i)(4))
- Show existing driveways (Ch. 441.3(i)(4))
- Show and dimension tapers (lane, shoulder, driveway, etc.) (Ch. 441.3(i)(4))
- Driveway angle dim. to SR centerline/as close to 90 degrees as possible (Ch. 441.8(b)(1))
- Show Limits of approved paving in plan (Ch. 441.3(i)(4))
- SR and Segment/Offsets provided and correct (Pub. 14M)
- Centerlines and stationing provided for SR and driveways (Pub. 14M)
- All relevant property owners/lines shown (Ch. 441.3 (i)(5))
- Limits of work indicated
- Right-of-Way lines (both sides & width) & type (Legal, Limited Access, etc.) (Pub. 14M, Ch. 3.5.A.1)
- Distance to nearest driveway & intersection to left/right for both sides of SR (Ch. 441.3.)
- List ADT's for each separate driveway (Ch. 441.3(i)(7))
- Posted speed limit provided on plans (Pub. 14M)
- Posted speed limit is correct (Pub. 14M)
- HOP application number referenced on plan
- Location map provided on the plans (Pub. 14M)
- Appropriate RC & TC standards/latest date ref. (Pubs 72M, 111; Ch. 441.6 (3))
- PA One-Call serial number provided (Ch. 441.6(2)(i)(B))
- Plans/reports signed and sealed by PE/PLS/RLA (49 Pa Code, Ch. 37.59)
- Plans signed and sealed by PLS
- No references to Preliminary plan
- Overall site plan indicating internal traffic patterns (Ch. 441.3(i))
- Red-Lined plans to be returned

### **Access Configuration**

- Number of driveways acceptable (Ch. 441.7(e))
- Justification for more than two (2) driveways (Ch. 441.7(e))
- Meet Pub. 282, Subchapter 2.4 requirements
- 10' tangent distance between end of driveway radius & intersection radius (Ch. 441.8(c)(1))
- 20' tangent distance in curbed area between driveway & intersection (Ch. 441.8(c)(2))
- 30' tangent distance in uncurbed area between driveway & intersection (Ch. 441.8(c)(2))
- 20' between driveways serving the same property (Ch. 441.8(e))
- 50' between driveways and ramp of speed change lane (Ch. 441.8(l))
- Permanent curb defines driveways when multiple driveways are less than 50' apart (Ch. 441.8(g))
- Aligns w/ driveways/road/lanes across highway (Ch. 441.7(c))
- Classified correctly as local road vs. driveway (Ch. 441.7(d))
- Driveway not to encroach on adjacent property frontage (Ch. 441.8(d))
- Returns offset per 3R criteria (Pub. 13M, page 1-41)
- Sufficient for trucks/largest vehicle (Ch. 441.8(a)(2))
- Any truck restrictions per Title 75 PA. C.S. §4908
- Radius returns extend full quadrant (Pub. 282, Ch. 2.4)
- Restricted driveways – radii designed to discourage wrong way movements (Ch. 441.8(a)(2))
- 16' min. lane width if channelization island
- Driveway throat length (Pub. 282, Subchapter 2.4)
- PC/PT/break points identified/dimensioned
- Contours needed/provided (Pub. 14M, Ch.2.6)
- Spot elevations along radii at 10' intervals

- Local road width in accordance with Pub. 70M
- Local road radius returns in accordance with Pub. 70

**Access Profile**

- Maintains SR travel lane and shoulder cross slope across the driveway (441.8(i)(4) and Figure 1)
- Difference between cross slope of roadway shoulder and grade of driveway does not exceed 8% (Ch. 441.8(i)(4))
- If on high side of superelevation >2%, slope is 2% away (Pub. 13M, Ch.1.2)
- Provided and meets Pa. Code, Title 67, Ch. 441, Figure 1
- Existing/proposed grades for SR and driveway (Pub. 14M, Ch. 2.6)
- Centerline/EOTL/EOP/legal ROW/crosswalk (Pub. 14M, Ch. 2.6)

**Sight Distance**

- Available and minimum requirements indicated (Ch. 441.3(i)(6))
- Meets 441 minimum safe stopping sight distance (Ch. 441.8(h)(2)(iv))
- Driveway location maximizes sight distance
- Justification provided for sight distance values that are less than the safe sight distance values
- Parked cars obstruct sight line for exiting vehicles? (Ch. 441.8(h))
- Embankment removal – sight line profile provided
- Sight distance provided for ex. driveways if widened
- Temporary barrier for traffic control obstructs sight lines
- Minimum sight distance calculated using 85<sup>th</sup> percentile speed or posted speed, whichever is greater
- Continuous sight distance for left-turn ingress shown on plan & profile

**Typical Sections**

- Minimum pavement thickness of 4 inches provided within R/W (Ch. 441.8(k))
- Pavement design provided / min depth requirements met (Pub. 242)
- Utilize SuperPave/PennDOT descriptions
- Pavement design approved by PennDOT
- Pavement history obtained/prop. match ex.
- Concrete pavement is at least 4 feet wide & dowel rods are used to connect to existing (Pub. 72M, RC-20M)
- Sawcut full depth pavement noted
- Open cuts are prohibited in bituminous pavement < 5years old and in all concrete pavement
- Leveling/ cross-slope correction shown if applicable (Pub. 13M, Ch. 1.5)
- Minimum 2% cross slopes on widened SR thru and auxiliary lanes (Pub. 13M, Ch. 1.5)
- Trench restoration detail with pavement design (Pub. 13M, Ch. 1.5)
- Typical roadway widening detail provided (Pub. 13M, Ch. 1.5)
- Min. 2' pavement width at tie-in point
- Seal joints with PG 64-22
- Bituminous tack coat indicated between each layer
- Bottom of subbase at or below existing for SR widening
- Pavement base drain or combination storm/underdrain provided (Pub. 13M, Ch. 1.5)
- Undercutting note provided if CBR values indicate subgrade is unsuitable

**Roadway Geometrics**

- Edge line or centerline milled rumble strips
- Horizontal curvature info if construction/driveway is along a state highway curve (Pub. 14M, Ch. 2.6)
- Vertical curvature – ASSHTO criteria (PVI Sta, Elev, VC length, MO, SSD/HLSD, PVC, PVT) (Pub. 14M, Ch. 2.6)
- Contour/Grading limits (Ch. 441.3(i)(1))
- Roadway centerline profile (widening) (Pub. 14M, Ch. 10)
- Centerline (Pub. 14M, Ch. 10)
- Stationing if improvement to SR are proposed
- Lane widths – 3R design criteria (Pub. 13M)
- Intersection alignment
- Intersection radii

- Adjustment profile required
- Milling required
- Overlay required
- Permitted Oversize Vehicles considered in the design of roadway/intersection improvements

**Shoulders**

- 4% cross slope if curbed or >8' in width; 6% ≤ 8' (Pub. 13M, Ch. 1.5)
- Low side of superelevation extends at SE cross slope when > required slopes (Pub. 13M, Ch. 1.5)
- Slopes away from high side of superelevation at 2% (Pub. 13M, Ch. 1.5)
- 100' of full-depth shoulder upgrade on both sides of driveway (Ch. 441.8(n))
- Shoulder widths, 3R design criteria, 2' min (Pub. 13M)
- Through traffic directed over existing shoulder, full-depth paving for rollover/grade break correction

**Left Turn Lanes**

- Full width overlay provided within widening limits (Pub. 282, Ch. 7.7)
- Turn lane lengths, shifting tapers, & bay tapers dimensioned
- Transverse gore markings required and labeled (Pub. 111, TC-8600)
- Turn lane lengths = required length in TIS/analysis
- Shifting tapers per Pub. 111, TC-8600
- Bay tapers per Pub. 111, TC-8600
- Offset (opposing) left turn lanes
- 12' lane widths desirable; 10' min (11' min if trucks)
- Hour glass effect (provide two-way center left-turn lane)
- SR profile and cross sections provided every 50' or contours and spot elevations every 20'

**Right Turn / Deceleration Lanes**

- 100' (75' in low speed, high traffic area) bay tapers
- Turn lane lengths, bay taper lengths, & lane widths dimensioned
- 14' curbed lanes; 12' uncurbed lanes with 3R shoulder
- Turn lane lengths/bay taper lengths = required lengths in TIS/analysis
- SR profile and cross sections provided every 50' or contours and spot elevations every 20'

**Curb**

- Reference RC-64M and current approval date (Pub. 72M, RC-64M)
- 5' curb end taper with a 0" reveal at finish grade
- Provide top/bottom curb elevations every 10'/20'
- Curb ramps if sidewalk; specifies RC-67M and type (Pub. 72M, RC-67M)
- Dimension at POT, POC, PT, PC, PCC (Pub. 14M, Ch. 2.6)
- Eliminate curb along taper if no adjacent curb
- 4 foot flat area behind curb sloped at 2% in same direction as surrounding terrain
- Label/dimension depressed curb (Pub. 13M, Ch. 6.11(B))
- Min. sidewalk width is 5' or 4' with 5'x5' passing areas every 200' (Pub. 72M, RC-67M)

**Medians/Islands**

- Driveway medians provided for med/high vol. (Pub. 282, Subchapter 2.4)
- Dimensions of islands (lengths, radii, offsets, etc.) provided (Ch. 441.3(i)(4))
- Type of curbing and proposed material provided (Ch. 441.3(i)(4))
- Flexible delineators/hazard markers per Pub. 111, TC-8604
- Medians/islands offset 4' behind edge/curb line (DM-2)
- Island size sufficient per AASHTO Geometric Design of Highways and Streets

### **Cross Sections**

- Cross sections provided for SR improvements
- Match ex but with min. 2% widening slope – tangent roads (Pub. 13M, Ch. 1.2)
- Match existing superelevated slope – curved roads (Pub. 13M, Ch. 1.5)
- Centerline and breakpoint elevations provided (Pub. 13M, Ch. 1.5)
- Existing and proposed cross slopes labeled (Pub. 13M, Ch. 1.5)
- Cut/fill slopes provided/labeled/acceptable (Pub. 13M, Ch. 1.5)
- Fill slope benching/detail required/provided (Pub. 13M, Ch. 1.5)
- Legal/Required ROW locations shown (Pub. 13M, Ch. 1.5)
- Grading outside of ROW; ROW or easements obtained
- Full-depth pavement & mill/overlay locations shown (Pub. 13M, Ch. 1.5)
- Pavement base drain shown (Pub. 13M, Ch. 1.5)
- Superelevation transition notes provided (Pub. 13M, Ch. 2.13)
- Superelevation transitions labeled & are in accordance with Pub. 13M, Ch. 2.13
- 50' intervals or 25' intervals in non-uniform areas (Pub. 14M, Ch. 2.7)
- Scale at 1"=5' desirable, 1"=10' max (Pub. 14M, Ch. 2.7)
- Dimensioned from centerline

### **Signing**

- Location and size/designation (Pub. 236) of all relocated and proposed signs shown (Ch. 441.3(i))
- All existing signs shown (Ch. 441.3(i))
- Existing signs to be relocated or removed labeled (Ch. 441.3.i)
- Details provided for non-standard signs (Ch. 212.B.101)
- Stop (R1-1) sign required
- R3-7 or R3-8 lane use control signs required for auxiliary lanes (Pub. 236)
- R4-7 and OM1-3 signs for medians (Pub. 236)
- Do Not Enter (R5-1) & One Way (R6-1L and R6-1R) signs on sign post on each side of access (6 signs) (Pub. 236)
- No Left Turn (R3-2) signs, near right and far left, entering and exiting (Pub. 236)
- Do Not Enter (R5-1) sign mounted back-to-back with Stop (R1-1) sign stays within edges of Stop sign (MUTCD 2B.10)
- Right clearance markers at obstructions required (Pub. 236)

### **Pavement Markings**

- Type, size, color and orientation indicated/correct
- Existing type, size, & color shown (Ch. 441.3(i)(1))
- 24" stop bar provided if necessary (Pub. 46, Ch. 3)
- Reference TC-8600, current edition
- Stop bar placed according to turning templates
- Proposed labeled "match existing" at limits of work
- Stations or seg/offset for proposed pavement markings (stop bars, lane separation lines, etc.)
- Crosswalk widths dimensioned (6' min) (Pub. 111, TC-8600)
- 6" minimum crosswalk lines (Pub. 111, TC-8600)
- Min 2 direction arrows per auxiliary lane (MUTCD, Ch. 3, Section 3B.20.21)
- First direction arrow 20' from stop bar (Pub. 111, TC-8600)
- 6" lane dividing lines; 4" edge lines and double yellow lines (Pub. 111, TC-8600)
- Min of 2 direction arrows with overhead signs provided for lane drops (Pub. 111, TC-8600)
- No "ONLY" legends for auxiliary lanes unless lane drop (Pub. 111, TC-8600)

### **Maintenance and Protection of Traffic**

- Sequence/narrative referencing PATA figures (Ch. 441.3(f))
- TCP provided if necessary
- Detour required/approved
- Located near signalized intersection (note provided)

- PATA figures attached in EPS
- Drop-off/safety slope protection note or detail provided
- PATA figure 10a referenced in conjunction with PATA 7
- Road Users Liquidated Damages

**Guiderail**

- Required per Pub. 13M, Ch. 12
- Impact attenuators provided/shown/correct (Pub. 13M, Ch. 12.8)
- Can guiderail be eliminated by regrading? (Pub. 13M, Ch. 12)
- Substandard guiderail (Pub. 408)
- Weathering steel guiderail not permitted

**Right-of-Way**

- Dimension to physical centerline (Pub. 14M, Ch. 3.5.A.1)
- Dedication to PennDOT required (Pub. 14M, Ch. 3.0.H.)
- R/W plans approved by PennDOT
- Drainage/Slope/Temporary construction easements required (Pub. 14M, Ch. 3.1(N), (O), & (R))
- Convert required R/W to legal R/W on HOP plans
- Deeds provided with R/W submission
- Additional R/W necessary for auxiliary lane (Ch. 441.8(j))
- Conveyance of R/W form (M-950 D1) used
- Acquisition of R/W from adjacent owners required
- Points of transition identified on the plan (Pub. 14M, Ch. 3)
- Legal verification of easements related to HOP provided and referenced in general notes

**Access Approval Procedures – Impacts to Access of Neighboring Owners**

- Form M-950R1 required/provided (Pub. 282, Subchapter 2.6)
- Modification to adjacent frontage (installation of auxiliary lane)
- Approval letter / plan signature required/provided
- Modification of adjacent driveway
- Separate application for impacted driveway required/provided (Ch. 441.3(b))
- Impacted driveways brought up to code (Ch. 441)

**Traffic Signals**

- Municipal awareness letter/permit (Ch. 212.5(b)(v)(A) addresses local municipality responsibility for maintaining signal)
- Interconnection required
- System permit plan required
- 10' max distance between push button and location where pedestrian would wait for signal (Pub. 13M)
- 10" max distance between push button and edge of landing area (Pub. 13M)
- Pedestrian study required (Pub. 149, Ch. 19)
- Standard notes provided
- Build volumes match analysis
- Signal warrants met (MUTCD, Ch. 4)
- Left-turn warrant (Pub. 149, Ch. 3.1 and Pub. 46, Ch. 4.6)
- Signal phases work with ped movements
- Clearance calculations provided
- Posted speed limit used for clearance calculations (Pub. 149)
- Correct widths used for clearance calculations
- Yellow and all-red times rounded to nearest whole second (Pub. 149)
- Walk/Man indication is at least 7 seconds
- Pedestrian clearance calculations provided
- 3.5 ft/s walking speed used in ped clearance calculations (Pub. 46, Ch. 4.3)

**HIGHWAY OCCUPANCY PERMIT OPERATIONS MANUAL**  
**Appendix C1 – HOP Project Application Checklists**

- Width of crossing measured from curb to curb (Pub. 46, Ch. 4.3)
- Countdown timers
- 4' pedestrian pathway provided (Pub. 13M)
- Intersection alignment
- Mast arm location, size in 5 ft increments, 65 ft max
- Separate mast arms provided for each approach (Pub. 149, Ch. 8)
- Mast arm allows for left-turn signal placement (Pub. 149, Ch. 6)
- Support location in accordance with Pub 149 offsets (Pub. 149, Ch. 5)
- Controller cabinet shown on plan (Pub. 14M, Ch. 10)
- Signal equipment within right-of-way or easement
- Overhead street name signs use Clearview 1W, 2W, or 3W font (Pub. 236)
- Street name, not development name, used on overhead street name signs (Pub. 236)
- Proper abbreviations used on overhead street name signs (Pub. 236)
- Permit General Notes
- Final conditions shown on the Permit Plan (Pub. 14M, Ch. 10)
- Revisions shown (Pub. 14M, Ch. 10)
- Plan Legend complete and accurate (Pub. 14M, Ch. 10)
- Timing diagram completed and correct
- "No Turn on Red" required
- Right-of-way lines shown in accordance with Pub. 14M
- Right-of-way lines labeled as "Legal Right-of-way line" (Pub.14M)
- Traffic signal easements labeled as "Legal Traffic Signal Easement" (Pub. 14M)
- Permit Plan updated to meet current field conditions
- Speed limits and grades provided on plan (Pub. 14M, Ch. 10)
- Distances to the nearest signal indicated on plan (Pub. 14M, Ch. 10)
- Sign chart (plan symbol, series number, size, and sign name) provided/correct (Pub. 236)
- H, I, O, Q, or U not used for sign plan symbol
- Pushbutton sign corresponds with ped signal head (Pub. 236)
- Preemption provided (Pub. 149, Ch. 10)
- Preemption note (Pub. 149, Ch. 10)

**ADA Compliance**

- Upgrade ADA if pedestrian path is changed (Pub. 13M, Ch. 6)
- Maintain 4' sidewalk width (Pub. 13M, Ch. 6)
- Proposed sidewalk > 100' must meet current standards (Pub. 13M, Ch. 6.3.B)
- Upgrade curb ramp w/in 15' of proposed sidewalk (Pub. 13M, Ch. 6.3.B)
- Upgrade curb ramps w/in 5% of proposed sidewalk (>300') (Pub. 13M, Ch. 6.3.B)
- ADA access provided (Pub. 13M, Ch. 6.2.C)
- Pedestrian study required/approved (Pub. 13M, Ch.'s 6, 7, and 9, and MUTCD Section 4E)
- Proposed sidewalk limits are logical (Pub. 13M, Ch. 6.2)
- Relocate inlets within curb ramps (Pub. 13M, Ch. 6.10.D)
- Traffic Control accommodates pedestrians (Pub. 13M, Ch. 6.9.D.11)
- Technically Infeasible Form included/approved (Pub. 13M, Ch. 6.2.B.4)
- Cross-slopes do not exceed 2% (Pub. 13M, Ch. 6.5.A.5)
- Adequate plan details provided (Pub. 72, RC-67M)
- Inspection form provided/completed (Pub. 13M, Chapter 6.2.B)
- Accessible push-button
- Reserved property compliance (Pa Code, Title 75, Ch. 33, §3354)

**Drainage - Hydrology**

- Drainage Control Plan required/provided (Ch. 441.3(g) & Drainage Impact Report Guidelines, Pub. 282, App. B)
- Location and type of existing/proposed drainage features (e.g., pipes, ditches, inlets, manholes, etc.) (Ch. 441.3(i))
- All drainage features shown with flow arrows

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**Appendix C1 – HOP Project Application Checklists**

- Drainage Control Report signed and sealed (Drainage Impact Report Guidelines, Pub. 282, App. B)
- Pre- vs. post-development peak flow analysis
- Post < or = to Pre (Ch. 441.6(6); Pub. 584, Ch. 13.11.E)
- Possible to maintain/ not alter Dept. facilities (Ch. 441.6(6))
- Application from municipality (Pub. 282, Ch. 7)
- Drainage release required (Ch. 441.3(h))
- Narrative (Drainage Impact Report Guidelines, Pub. 282, App. B)
- Overall Site Development Plan (Drainage Impact Report Guidelines, Pub. 282, App. B)
- Pre/post drainage area plans (Drainage Impact Report Guidelines, Pub. 282, App. B)
- Proposed flow into/out of ROW consistent with existing grades/flow (Ch. 441.6(6))
- Time of concentration (5 min. if pipe 30" or less) (Pub. 13M, Ch. 10)
- TC paths shown on drainage area plans
- Storm frequency correct (Pub. 13M, Ch. 10.6.E)
- Rational formula used for drainage areas up to 200 acres (Pub. 13M, Ch. 10.2.C)
- 'C' coefficients; curve numbers (Pub. 13M, Table 10.2.1)
- Rainfall intensity rate correct (Pub. 584, Ch. 7, Appendix A, Figures 7A.7 through 7A.16)

**Drainage - Inlets**

- TG and invert elevations (Drainage Impact Report Guidelines, Pub. 282, App. B)
- Inlet drainage area plans (Drainage Impact Report Guidelines, Pub. 282, App. B)
- Not located in radius return (Pub. 72M, RC-45M)
- Inlet capacities (Pub. 13M, Ch. 10.3.A.7)
- Inlets not sumped
- Inlet spacing and location (Pub. 13M, Ch. 10.3.A.7)
- Flanking inlets at low points (Pub. 13M, Ch. 10.3.A.7)
- Not located in travel lane; convert to manhole or cap (Pub. 584, Ch. 13)
- Gutter capacity/spread (Pub. 13M, Ch. 10.3.A)
- Manholes not located in travel lane (Pub. 584, Ch. 13.10.A)
- Type/size indicated

**Drainage - Pipes**

- 1' minimum cover (Pub. 13M, Ch. 10.3.B.2)
- Pipe capacities analysis
- Minimum 18" pipe within ROW (Pub. 584, Ch. 13.11.E)
- Minimum 15" pipe under driveways (Ch. 441.8(i)(2))
- Minimum 0.35% slope
- 2" drop across inlets (Pub. 13M, Ch. 10.3.B.2)
- Storm frequency correct (Pub. 13M, Ch. 10.6.E & Ch. 10.2.C)
- Cross pipe that is part of a system uses same design storm as remainder of system
- Pipe profiles provided (type, corrugations, length, slope, inverts, ground profile, min/max fill heights.) (Pub. 584, Ch. 9; Pub. 13M, Ch. 10; SOL 431-10-07)
- Pipe information provided on plan (size, slope, length, type) (Pub. 584; Pub. 13M, Ch. 10; SOL 431-10-07)
- Pipe nomenclature consistent with Pub. 13M, Ch. 10; SOL 431-10-07
- Downstream pipe analysis if increase flow (Drainage Impact Report Guidelines, Pub. 282, App. B)
- Combination storm sewer and underdrain pipe
- Culvert analysis; inlet/outlet control
- Pipe velocity, 3-8 fps
- Trench restoration detail
- Extension-same type, slope
- Misc. details
- Inspector required for trench backfill in pavement, sidewalk or shoulder (Pub. 408, Sec. 601)

**Drainage – Channels and Swales**

- Typical swale section provided (Drainage Impact Report Guidelines, Feb 2004)



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**Appendix C1 – HOP Project Application Checklists**

- Capacity analysis (Drainage Impact Report Guidelines, Feb 2004)
- Encroach upon shoulder/lane (Pub. 13M, Ch. 10.3.A.1)
- Flow across driveway acceptable; cross driveway pipe required
- Swale slope acceptable
- Grading details provided

**Drainage – Storm Water Management Basins**

- Detention basin analysis
- Does not point discharge toward State Highway
- Minimum 8 feet from ROW because of basin embankment requirements

**Utilities**

- Separate application submitted (Pub. 16M)
- Updated Act 287 note
- Separate application for street lights (Pub. 16M)
- Existing utilities that may conflict with proposed construction are noted (Pub. 16M, Ch. 1)
- Acceptable pole location (Pub. 13M and Pub. 16M, Ch. 1)
- PennDOT fiber optic impacted
- Relocated utility positions/pole ID numbers required/provided

**Waiver Requests**

- Alternatives considered (Ch. 441.5(e))
- Right-of-way correspondence/documentation (Ch. 441.5(e))
- Indemnification (Ch. 441.5(e))
- Waiver approval
- Design waiver request required