



February 11, 2022

Plan Commission
Village of Cottage Grove
221 East Cottage Grove Road
Cottage Grove, WI 53527

Re: Project Silver Eagle
Village of Cottage Grove, Wisconsin (Village)

Dear Plan Commission:

Strand Associates, Inc.® (Strand) received a Precise Implementation Plan (PIP) from TC Pursuit Services, Inc. on January 19, 2022. Strand has also attended several meetings with TC Pursuit Services, Inc. and Village staff to discuss Project Silver Eagle and the PIP submittal over the past month. Strand received the following documents included in the PIP for review:

1. Trip Generation Comparison, dated November 24, 2021
2. Traffic Impact Study (TIS) Report, dated January 2022
3. TIS Report Appendices, dated January 2022
4. Offsite Impacts–Geometry Exhibits, January 2022
5. PIP Civil Set, dated January 19, 2022
6. PIP Narrative, dated January 19, 2022
7. Stormwater Management Plan (SWMP) Memorandum, dated January 19, 2022
8. Driveway Culvert Calculations, dated January 19, 2022
9. Storm Sewer Design, dated January 18, 2022

Strand has the following comments on the above-mentioned documents included in the PIP.

TIS Report Comments

In accordance with the Dane County Highway Department (Dane County), the Village has the authority to grant access points along County Highway (CTH) TT and CTH N within the Village limits. Dane County has jurisdiction at the proposed access points to approve intersection improvements along with Village input. TC Pursuit Services, Inc. has request four full access connections to the county highways, two at CTH TT and two at CTH N. As part of the TIS and in meetings with TC Pursuit Services, Inc., it is Strand's understanding that Site Driveway D along CTH N will be the primary truck access for the site and the other three access points will be primary passenger vehicle. Strand recommends the Village consider granting up to two access points along CTH N and CTH TT as presented in the PIP.

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Strand has the following comments in addition to the Dane County comments dated January 25, 2022, by Susan LeBrun, enclosed in this review letter.

1. On Page 2 of the TIS, the 40 percent truck percentage assumption should say to and from the east, not the west as currently noted.
2. On Page 3 of the TIS, clarify the assumption for how often Site Driveway C may be used for truck access. Please clarify if the driveway will potentially need to be used more frequently in the future.
3. On Page 4 of the TIS, clarify the citation (1) call out for the four proposed intersections.
4. On Figure 1B, include speed limit changes on this figure.
5. As the report notes, the CTH N and Site Driveway D does not currently meet left-turn warrants northbound, but it is very close to meeting these warrants. Strand recommends adding a northbound left-turn lane now as continued traffic growth along this corridor will likely warrant it in the near future.
6. Include truck turning movement exhibits within the report for each intersection and for truck circulation on-site for the primary and secondary truck access routes.
7. Site Driveway D is the truck access, but all movements are listed with 2 percent trucks. Please revise the TIS and modeling to show accurate representation of anticipated truck percentage.
8. All site driveways use a peak hour factor of 0.90 and truck percentage of 2 percent. Please revise each intersection based on the assumptions of what traffic will use the driveways.
9. The initial discussion in the report noted that an additional scenario with a roundabout at Site Driveway D may be desired as a way to provide speed control along CTH N between Site Driveway D and the CTH N and CTH TT roundabout. Please provide a modeling analysis for a roundabout and an exhibit of the alternative, if considered further.
10. The northbound left-turn bay at Site Driveway C should include a 200-foot storage length (50-foot minimum storage length plus 150-foot deceleration in storage bay) in accordance with Wisconsin Department of Transportation's (WisDOT's) Facilities Development Manual (FDM) 11-25, Figure 2.8 and Table 2.5.
11. Strand recommends a short right-turn bay at the southbound Site Driveway C and westbound Site Driveway B to help shift right-turning traffic out of the through lanes.
12. Village members have stressed the concern of existing traffic queuing during the PM period at the westbound Interstate 94 (I-94) off-ramp. The TIS modeling does not show an issue at this off-ramp. Strand recommends this ramp terminal be monitored for a couple days during the PM peak to review queuing lengths. Traffic modeling should be calibrated to represent current conditions, as needed.

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13. Turn bay taper for the on-site leg of the public intersections should be 8:1 desirable.
14. Strand recommend TC Pursuit Services, Inc. dedicate a strip of property along the western edge of CTH N to the Village to provide a total of 80 feet of right-of-way (ROW) from the center of the current ROW. This will provide additional ROW for Dane County and the Village to expand this major arterial in the future, as needed.
15. The Village would like the development to consider the installation of a 10-foot-wide multiuse path along the ROW on both CTH N and CTH TT. The path should be placed in ROW 1 foot from the ROW line, where practical that will connect to the existing multiuse path system at the CTH N and CTH TT roundabout.
16. It is anticipated the remaining portion of the Tax Increment District (TID) #10 to the north and west will be connected to CTH N near Faber Road and a potential secondary connection could be explored at Alvin Road. Strand is not recommending an access be provided through the TC Pursuit Services, Inc. parcel.

PIP Civil Site Plan Drawing Comments

The PIP Civil Site Plan submittal did not include any public water main or sanitary sewer connections to the site currently. The drawings indicate a sewer and water connection would take place along CTH N. Strand has continued to meet with Village staff and TC Pursuit Services, Inc. to evaluate a feasible alternative for public water and sewer to serve both Project Silver Eagle and the surrounding undeveloped TID #10 parcels. At this time, Strand recommends extending sanitary and water services from CTH TT to serve the proposed site and future western parcels in TID #10 by gravity. The northern remaining portion of TID #10 could then pump by lift station into this gravity sewer. The portion of TID #10 east of CTH N would then pump sewer by lift station to the gravity sewer at the CTH N and CTH TT roundabout. Strand anticipates at least one additional review of any public utility infrastructure design and connections to the Village's utility systems.

The below comments are general civil comments.

1. Where listed on the drawings to tie into future improvements, show the future improvements to confirm tie in connections can be accomplished.
2. Coordinate with the Wisconsin Power and Light Company for any grading changes within its easement as existing power poles may need to be adjusted accordingly.

Sheet C1.00--Title Page

1. On the cover page, please add the "Village, Village Engineer, and Village Building Inspector" to the indemnity language shown in General Note 14. Village staff will likely be working with the contractor during installation of public infrastructure and building inspection.

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Sheet C3.00–Paving Plan

1. Dane County mentioned using WisDOT Standard Detail Drawings (type to be confirmed by Dane County but Strand would recommend a minimum Type B2) for design of the four access intersections to the project site. This design detail will change the proposed drawings offset of the radius points to the driveway connections, provide for right-turn lanes, and require a 36-inch concrete curb and gutter section.
2. Include drawings for the proposed CTH N improvements for the left-turn lanes at both access points.
3. Along the front drive access to the building, it appears there are two concrete islands that block the ability for a vehicle to travel parallel along the front of the building. While this promotes safety for pedestrians as they enter and exit the building, it does pose a constraint for emergency service access along the front of the building. Strand recommends providing mountable concrete curbing for emergency services vehicle access to the building.
4. Provide fire ladder truck turning templates through the site and around the entire building to display how a ladder truck can fully access the site.

Sheet C4.03 and C4.04–Grading Plan

1. Provide retaining wall design drawings showing the proposed geogrid reinforcement and construction excavation limits. The wall excavation limits may impact the Wisconsin Power and Light Company easement shown at its current location.

Sheet C4.04–Grading Plan

1. What is the call out for the “drive access easement” and “no access easement” along the CTH N ROW indicating?

Sheet C6.00–Utility Plan Overview

1. Fire hydrants shall be Waterous Pacer with Water Series 2500 valves.
2. Sanitary sewer greater than 15 feet deep shall be SDR 26 pipe.
3. Tracer wire on public water main shall be installed with #12-gauge tracer wire and shall terminate in tracer wire access boxes at all fire hydrants.
4. The minimum cover depth of sewer and water main can be 6.5 feet before insulation is required.
5. Strand recommends a minimum of 400 feet of spacing between fire hydrants surrounding the building.

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Sheet C6.01–Utility Plan

1. A 12-inch public water main should be extended from CTH TT to the western limits of this parcel to serve the western portion of TID #10. A minimum 15-foot utility easement should be centered on the public water main.

Sheet C6.03–Utility Plan

1. Provide 8-foot minimum separation between fire protection water main and sanitary sewer service.
2. Clarify the type of pipe used for the 10-inch fire protection line.
3. The existing 12-inch sanitary sewer along CTH TT should be extended to the western limits of this parcel to serve the western portion of TID #10 by gravity. A minimum 15-foot utility easement should be centered on the public sewer main.

Sheet C6.04–Utility Plan

1. Confirm there is not a conflict with the proposed fire hydrant locations and the proposed drain tile locations. Provide 8-foot minimum pipe separation between the 12-inch public connection and proposed storm sewer.
2. Provide valving on the 12-inch water main on the site and the 8-inch water main leading to the fire protection tank.
3. Show shut off valves for all fire hydrants.

Sheet C6.06–Utility Plan

1. Relocate the fire hydrant shown in the “no parking” pavement area. Fire hydrants should be located outside of the pavement area to protect them from being struck by a vehicle.

Sheet C7.00–Site Stabilization Plan Overview

1. Show tracking pad locations at all construction entrances on the overview sheet and each detail sheet, as necessary.
2. Provide inlet protection on all inlets at the CTH N and CTH TT intersection because of tracking from the construction site.
3. Include seeding, fertilizer, and mulch in the legend description with “erosion control blanket.”

Sheet C8.00–Construction Details

1. Provide biodegradable stakes for the Erosion Matting–Slope Installation Detail.

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2. Cut off walls should be provided at end sections of storm sewer apron end walls.
3. The Inlet Protection detail provides multiple different inlet type variations, clarify which variation is needed for each inlet called out. Additionally, all curb inlets should meet Dane County standards of the frame inlet protection. Provide the additional Dane County inlet detail.

Sheet C8.01–Construction Details

1. Public water main should have mega lug restrained joints in accordance with the following table for restraint of bends over thrust blocking.

Fitting	Minimum Length (Feet)
90 Degree Bend (≤ 6 inches)	36
90 Degree Bend (8 inches to 10 inches)	54
90 Degree Bend(12 inches to 14 inches)	72
90 Degree Bend (16 inches)	84
45 Degree Bend (≤ 8 inches)	18
45 Degree Bend (10 inches to 16 inches)	36
22 1/2 Degree Bend ≤ 16 inches	18
11 1/4 Degree Bend ≤ 16 inches	9
Fire Hydrant Leads	All Joints
End of Line Tees (≤ 4 inches)*	18 (Along Branch)
End of Line Tees (6 inches to 8 inches)*	36 (Along Branch)
End of Line Tees (10 inches to 12 inches)*	54 (Along Branch)
End of Line Tees (14 inches to 16 inches)*	72 (Along Branch)

Table 1 Required Length of Restrained Pipe Beyond Fitting in Feet

2. The Fire Hydrant detail shall be updated in accordance with the previously mentioned comments regarding fire hydrant manufacturer. Additionally, all fire hydrant lead joints shall be restrained, and a tracer wire access box shall be provided for termination of the tracer wire.
3. For the Sanitary Manhole detail, public sanitary manholes shall not have manhole steps over the flowline. Additionally, adjustment rings shall be high density polyethylene (HDPE) with a maximum of 12 inches of adjustment.
4. Provide utility trench details.

Sheet C8.03–Construction Details

1. Details shown on this page are repeat details shown on previous detail sheets. Confirm which detail drawings are accurate and delete repeat details, as necessary.

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SWMP Memorandum, Driveway Culvert Calculations, and Drawing Comments

Strand has reviewed the submitted SWMP for the proposed development to check conformance with applicable Village, county, and state stormwater management regulations. Given that the proposed development is classified as a new development, the following stormwater management performance standards apply:

- Sediment control practices must be provided resulting in an 80 percent total suspended solids (TSS) reduction for the site.
- Oil and grease control practices must provide treatment for the first 0.5 inch of runoff.
- Runoff rate control practices need to be provided to maintain predevelopment peak runoff rates from the site for the 1-, 2-, 10-, 100-, and 200-year, 24-hour design storms.
- Stable outlets capable of carrying designed discharge flow from the site must be provided.
- Infiltration practices must be provided to infiltrate sufficient runoff volume so that postdevelopment infiltration volume at the site shall be at least 90 percent of the predevelopment infiltration volume based upon average annual rainfall.

Based on Strand's review, the submitted SWMP demonstrates general conformance with these aforementioned stormwater management performance standards. However, Strand has provided the following stormwater and drainage-related review comments that should be addressed. It is anticipated that the SWMP and supporting stormwater modeling will likely need to be revised in order to address the following review comments.

Driveway Culvert Calculations

1. The computed pipe velocities for the 24-inch culverts under Driveway B and C appear to be excessive (greater than 9 feet per second). The recommended headwater/pipe diameter ratio of 1.5 stated in the WisDOT FDM should not be exceeded to limit excessive pipe velocities.

Sheet C4.01–Grading Plan

1. Surface drainage from the Heinemann Business Park located to the west of the west property line is directed to an existing drainage ditch that runs through the property. This drainage is directed down a steep embankment slope that then enters a proposed wet pond (Pond 1). This off-site runoff should be collected in either a defined drainage ditch or collected in a storm sewer to avoid potential erosion issues along the embankment slope into the pond.

Sheet C4.02–Grading Plan

1. It is recommended that a level spreader structure be added downstream of the 12-inch inflow pipe from Pond 3 into the infiltration pond.

Sheet C4.03–Grading Plan

1. Off-site drainage from a watershed west of the site is tributary to a steep proposed embankment slope that directs surface runoff to a proposed retaining wall. The applicant should indicate how

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this off-site runoff will be managed. It seems appropriate to intercept this runoff in a storm sewer pipe instead of runoff being directed down a steep embankment.

Sheet C4.04–Grading Plan

1. A retaining wall is proposed along the parking roadway near the wetland delineated by Breese & Associates. Based on the overall site grading plan much of the existing watershed draining to that wetland is being filled and directed to detention basins. The remnant piece of this wetland's functionality should be discussed with the Wisconsin Department of Natural Resources (WDNR).

Sheet C4.05–Grading Plan

1. The drawing indicates a shallow drainage swale that runs along the top of a proposed retaining wall along the west property line. Supporting calculations should be provided that show that this swale has sufficient capacity.
2. Surface drainage from the swale mentioned in the previous comment should be intercepted in a storm sewer along the retaining wall before running down the steep embankment into Field Inlet 3.1.

Sheet C4.06–Grading Plan

1. The drainage swale around the east side of the truck parking area is very flat approximately 0.20 percent slope. Consider regrading that area to promote drainage to the south and prevent ponding water on the site.

Sheet C5.00–Storm Sewer Plan Overview

1. Generally speaking, most of the storm sewer outfalls entering wet Ponds 1 and 2 have outfalls that are elevated approximately 3.5 feet above the normal water level (NWL) elevation. The 4:1 slope between the outfall and the pond surface will likely be prone to erosion. It is recommended that a vertical drop be placed in the manhole upstream of the outfall to allow the outfall invert elevation to be set equal to the NWL elevation of the receiving pond.
2. Ponds 1, 2, and 3 have 4, 8, and 7 storm sewer outfalls entering the ponds, respectively. It appears that there may be an opportunity to combine some of these storm sewer systems to reduce the total number of outfalls entering the pond, which may reduce required long-term maintenance. Also consider avoiding placement of storm sewer outfalls that are immediately adjacent to wet pond outfalls to avoid short circuiting.
3. Consider shifting the outlet of the storm sewer system draining the west entrance drive off of CTH TT to drain into Pond 2 instead of Pond 1 to avoid short circuiting. Similarly, it is suggested that the outlet of the storm sewer draining the east entrance drive off of CTH TT be shifted from Ponds 2 to 3.

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Sheet C5.02–Storm Sewer Plan

1. No pipe callouts are provided for the CTH N south entrance culvert.

Sheet C5.04–Storm Sewer Plan

1. The invert elevation of the 60-inch apron end wall entering the west side of Pond 3 should be lowered to elevation 925.0. The additional pipe drop should be accommodated in the upstream storm sewer structure (Inlet 51.0).
2. No pipe callouts are provided for the CTH N north entrance culvert.

Sheet C5.05–Storm Sewer Plan

1. Clarify the need for the development stubbing storm sewer to the north of the truck parking area.

Sheet C7.00–Site Stabilization Plan Overview

1. Storm sewer outfalls entering the wet detention ponds need to have riprap aprons that extend to the bottom elevation of the pond permanent pool. A construction detail of this situation should be provided on Sheet C8.00. This detail needs to appropriately show the clay liner extending 2 feet below the bottom of the riprap apron.

Sheet C7.02–Site Stabilization Plan

1. The riprap apron downstream of the pipe outlet from the infiltration basin should be extended down the embankment slope and meet with the receiving upstream end of the CTH N driveway culvert.

Sheet C7.04–Site Stabilization Plan

1. It is recommended that the existing channel between the spillway of Pond 3 and the existing CTH N culvert be appropriately stabilized (i.e. permanent turf reinforcement mat, riprap, and stone check dams). Given the steep slope of this existing channel, it will likely be prone to erosion.
2. A curb flume and riprap apron should be place at the end of the south entrance curb return along CTH N.
3. A stone riprap apron should be placed at the downstream (south) end of the cross culvert under the main entrance along CTH N.

Sheet C8.02–Construction Details

1. A perforated drain tile system in the bottom of the proposed infiltration basin should be provided. The tile system would be plugged in normal operating conditions, but can be removed to allow the basin to be drained for maintenance purposes if the basin gets silted in.

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2. The overflow spillway construction details indicate placement of stone riprap overlain with a thin layer of topsoil reinforced with a permanent turf reinforcement mat. The thicknesses of the riprap and soil layers should be specified. Sufficient topsoil thickness needs to be provided to insure filling in void spaces of the riprap and to allow vegetation to survive. The design engineer should address the potential for flow to pipe or filter through the riprap layer prior to overflowing the crest of the spillway. If permanent erosion mat is used, it should also be reinforced with a temporary erosion mat.

General Comments

1. A stormwater maintenance plan and maintenance agreement with the Village will need to be prepared and submitted for review in addition to the Village Land Disturbance Permit.
2. The stormwater analysis should include an estimate of the capacity of the existing 5- by 3-foot CTH N culvert in the existing condition and compare how the culvert will perform in the proposed condition. It is understood that the existing culvert likely has around a 10-year storm capacity before overtopping CTH N, but it is important to document this condition. That way, if the culvert overtops CTH N in the proposed condition, it can be shown that this was how the culvert performs currently.
3. Geotechnical and soil investigations will need to be performed at the site to confirm the design infiltration rates to be applied for the infiltration basin. Note that the infiltration basin construction detail on Sheet C8.02 indicates that 10 feet of native soil material is to be over-excavated and replaced with sandy soils. The soils investigations will need to support this practice. Also, the soils report will need to address the need to install clay liners in the proposed wet detention basins.
4. The existing conditions plan (Sheet C2.00) indicates the presence of existing wetlands within the center of the site. It appears that a small portion of these wetlands is proposed to be filled in. A copy of the September 14, 2018, wetland delineation report should be provided. The applicant will need to provide WDNR permitting approvals for placement of fill within this wetland.
5. Generally speaking, the stormwater management calculations appear to be acceptable and demonstrate compliance with Village, county, and state stormwater regulations. However, review of the pond routing calculations indicates that the large wet pond (Pond 3), will overflow its spillway for less than a 10-year return interval event. Typically, overflow spillways are designed to handle extreme events in excess of a 100-year storm event. It is recommended that the applicant consider conveying flows from the pond via an enclosed pipe outlet instead of a spillway.

Lighting Comments

1. A lighting plan was submitted after the original PIP submittal. Strand is reviewing the development team's dark sky requirements and plan for the site lighting. When the photometrics plans are submitted, the lighting levels will be reviewed in accordance with Village Ordinances. Based on the proposed location of the building, parking lots and access roads, Strand does not anticipate issues with lighting levels impacting private properties.

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Conclusion

Based on the information provide in the PIP submittal, Strand would recommend site approval based on the conditions listed in this letter. Strand will continue to work with Village staff, Dane County, and the development team as they finalize the county highway access improvements and public utility extension for future TID development.

Sincerely,

STRAND ASSOCIATES, INC.®

A handwritten signature in black ink, appearing to read "Josh J. Straka". The signature is fluid and cursive, with a large initial "J" and "S".

Josh J. Straka, P.E.

Enclosure

c: Erin Ruth, Village Planning Director, Village of Cottage Grove
JJ Larson, Village Administrator and Director of Public Works, Village of Cottage Grove

Transportation Impact Study for Project Silver Eagle by Langan Engineering - January 2022

1. Page 1 under Site Trip Generation and Distribution: average of 661 employees, Dane Co. has requested that the analysis includes peak season # of employees either as the primary analysis or a check on the analysis for the average # of employees. Identify what is the anticipated peak # of employees and for which weeks/months of the year. Include 2023 Build Peak Hour conditions for Peak # of Employees
2. No analysis was performed for Future conditions, i.e. 10+ years. For a significant traffic contributor such as this, a 10 or 20 year outlook is warranted.
3. Page 3 (1st paragraph) includes the SF of the building footprint. Further explanation is needed: how many stories, Gross Square Feet (GFA), etc.
4. CTH TT: clarify where the speed limit drops from 55 mph to 45 mph, east or west of the roundabout?
5. Page 4 CTH T – change facilities to facilitates
6. Page 4 last paragraph – indicate the date(s) of data collection for intersection counts.
7. Page 5, 2nd paragraph, again include dates of intersection counts
8. Page 5, under DEVELOPMENT DESCRIPTION (1st paragraph), describe total SF, # of levels
9. Add a Future 10 year scenario
10. Page 6, under Parking and On-Site circulation – again include *total* SF, not just footprint
11. Page 7, locate ITE truck generation calculation/source. How were truck numbers generated?
12. Move Tables to be within the report for reference
13. Page 7, Table 1B indicates client specific trip generation is not consistently lower than ITE. It is higher in some places and higher in truck volumes overall. If so, ITE numbers are not conservative. Consider whether the analyses should use higher numbers.
14. Page 7, replace mythology with methodology
15. Page 7, regarding Table 1B, please also include a comparison of Land Use 150 using GFA as the independent variable
16. Page 8, 4th line, clarify “site traffic” is “Silver Eagle site traffic”
17. Page 8, reference to Table 2: more detail is needed – map with locations of developments (can copy from original source if cited), which developments are included in the projections and which are not?
18. Page 9, top, Dane Co. would like an analysis for RIRO configuration at Driveways B and C (as requested in earlier correspondence)
19. Page 9, what speed limit is assumed for the LTL warrant analysis at each intersection analyzed? For Right turn lane analysis, none of the driveway intersections have posted speed limit of 40 mph so the 45 mph graphs should be referenced where applicable.
20. Page 9 and Appendix I, use FDM 11-25 Attachment 1.1 to determine intersection type and turn lane configurations/lengths where speed limits >50 mph.
21. Page 9, last paragraph, evaluate a roundabout and compare side by side with stop controlled intersection
22. Page 10, give specific ISD numbers at Driveway D: Required, theoretical attained from Figures J-1 and J-2, and also include in-field assessment of sight distance. Also, change “Driveway Site Distance Analysis” to “Driveway Sight Distance Analysis.”

23. Figure 3 – include U-turns with left turns
24. Figure 4B – more information is needed (add notes to the figure) on the source of these volumes. What year? Which developments are included?
25. Table 2 – notes cite TIA dated 11/6/2020. Include this document or a sufficient summary in an Appendix
26. Tables 3A and 3B – indicate type of intersection control for each intersection (stop control, signal, roundabout)
27. Appendix B – Counts – leave out Intersection Location numbers that do not match Figures. Why is 24 hour count included? Also other intersections are included 2x for AM and PM. Leave out 2nd set if no new information is provided.
28. Appendix H – use a PHF of 0.83 for PM Driveway analyses, to match lowest PHF of PM counts.
29. Appendix K – Signal Warrant Analysis listed in Table of Contents but not part of appendices or report