

SUMMARY MEMORANDUM

Mr. Kyle Corbeil, P.E.
Project Engineer
Woodard & Curran
One Merchants Plaza
Bangor, ME 04401

March 25, 2016

RE: Preliminary Traffic Review for Hampden Solid Waste Processing Facility

The purpose of this memorandum is to summarize my preliminary review of the proposed Solid Waste Processing Facility in regard to traffic, as requested by Woodard and Curran and the Town of Hampden. I reviewed "Hampden Site Plan Review Application for Solid Waste Processing Facility, Appendix 1, Traffic Narrative," prepared by Victor J. Smith, P.E. and dated June 24, 2015. In addition, I reviewed the site plans prepared by CES, Inc, dated March 3, 2016. My preliminary review comments are summarized below:

1. **Trip Generation:** The Institute of Transportation Engineers (ITE) "Trip Generation" report does not provide a Land Use Code for Solid Waste Facilities. While the application provided daily traffic estimates it did not attempt to estimate peak hour flows. The application anticipates 70 employees at full operation, spread over three shifts. Generally, employment is heaviest during the first two shifts with the peak hour occurring when the first shift is ending and the second shift is starting. Assuming 10 employees for the overnight shift and 60 employees for the other two shifts combined would result in up to 60 peak hour trips, when first shift employees are departing and second shift employees are arriving. It is also important to note that the application assumed just two daily trips per employee. Since some employees leave at lunch or to run errands, the daily average number of trips per worker is typically 3.3 trips, based upon typical ITE office data, resulting in a total of 260 daily one-way trips for employees and visitors, as opposed to the 168 cited in the application.

In addition to the employee traffic, there will be up to 89 truck deliveries of incoming waste per day. Assuming most of these occur over a twelve hour period results in 8 round trip truck trips per hour = 16 one-way trips, which is then doubled to equate to passenger car equivalents (pces). This yields a projected afternoon peak hour of 60 employee trips and 32 pce truck trips for a total of 92 pces. While I concur that the project will likely not exceed the 100 trip-threshold, which would require a Traffic Movement Permit from the Maine Department of Transportation (MaineDOT) this is a significant level of traffic as discussed in the following paragraph.

Based upon standard operating practice in Maine, this level of traffic (92 pces) would warrant a full Traffic Impact Study. The general study area, according to Maine standard practice, extends to where a project is expected to contribute 25 or more lane hour trips

(defined in pces). As a result, the study area should extend from the site through the site drive intersection and then along Coldbrook Road to where there are fewer than 25 lane hour trips (again, defined in terms of pces) in the peak hour.

It is requested that CES provide peak hour trip estimates and trip assignments to finalize the study area. The best method to estimate trip generation for the new facility may be to collect data at the existing PERC facility in Orrington and appropriately increase or decrease those results, based upon both employee data and waste tonnages. It may also be necessary to adjust any trip generation counts performed this spring to peak summer conditions, when waste generation is highest in Maine.

2. ***Trip Assignments:*** Since no peak hour data was provided in the narrative, no peak hour trip assignments were provided by CES. Based upon the anticipated haul routes and existing traffic patterns relative to employee trips, trip assignments should be provided. The purpose of these trip assignments will be to determine study area for capacity purposes, as previously discussed, and also to allow for traffic impacts to be analyzed for no-build and build conditions.
3. ***Traffic Volumes:*** No traffic volume data was provided. A turning movement count should be conducted at the intersection of Coldbrook Road and the H.O. Bouchard Drive (at a minimum) to determine existing traffic volumes for the peak hour period, based upon the trip generation analysis results, which is expected to be the afternoon/PM peak hour period. Dependent upon the trip assignments and the resultant study area, additional turning movement counts may be needed.
4. ***Traffic Analysis.*** Level of service (LOS) analysis should be performed for both no-build and build conditions for the determined study area intersections to assure acceptable traffic operations. At a minimum, the study area will include the site drive intersection of Coldbrook Road and LOS analysis should be provided for the site drive to assure acceptable drive operations.
5. ***Auxiliary Turn-Lane Warrants.*** In addition to LOS analysis, turn-lane warrants should be provided for Coldbrook Road at the site drive to determine the need for either a right-turn lane or a left-turn lane to serve traffic entering the site. These warrants should be performed according to the procedure of the MaineDOT "Highway Design Guide".
6. ***Accident Data:*** Mr. Smith obtained accident data for Coldbrook Road from I-95 to Route 202. Depending upon the results of the trip assignments and resulting study area, since a new portion of the haul route is Route 202 from Route 2 to Coldbrook Road, additional accident data may need to be obtained and analyzed. Based upon the data provided there are no high crash locations along the Coldbrook Road corridor.

The study area for accident review purposes is often extended beyond the 25 lane hour trips. Additional accident data should be obtained and analyzed for all areas of concern identified by the Town as outlined in the following section.

7. **Haul Routes:** The application shows the intended haul routes to the facility. How will the facility mandate these haul routes? For example, trucks that are headed from the northeast are expected to take Route 202 to Coldbrook Road. How will they be managed to assure that they do not take Main North Road and the Town portion of Coldbrook Road to access the site? Most trucks would be expected to simply take the shortest, most direct route. The haul route map show trucks coming from the southeast up Route 1A towards the facility but it then expects them to travel to I-395. I think many of these trucks will simply opt to stay on Route 1A. How can the trucks possibly be controlled to require the specific haul routes noted in the application?

It is understood that the Town of Hampden is concerned with trucks at three particular intersections in the vicinity of the facility, which could indeed be impacted by trucks using the shortest, most direct route. These intersections are:

Main Road North (Route 1A) and Western Avenue
Western Avenue and Route 202.
Coldbrook Road and Main Road North (Route 1A)

Since the above intersections are generally within two miles of the facility and are noted to be of particular concern to the Town, they should be specifically addressed in some manner in the Traffic Impact Study. The Town also feels that there are sight distance restrictions at the intersection of Main Road North and Coldbrook Road so this should be evaluated in the study.

8. **Driveway Sight Distances:** Sight distances were provided for the proposed new drive across from the HO Bouchard Drive. For the 45 mph speed limit zone, the Maine Department of Transportation requirement is 635' for drives with a high number of large vehicles. Mr. Smith stated sight distance to the right is 740' and that it exceeds 2,000' to the left. These sight distances are more than adequate. It is important to note that MTR did not perform a field review to verify these sight distances.
9. **Interior Road Network:** The site plan (C103 dated 3/3/16) was reviewed in regard to on-site circulation for both pedestrians and vehicles since circulation, pedestrians and access by emergency vehicles are outlined as items of importance in the Town of Hampden Ordinance. CES appropriately provided a paved sidewalk for employees to enter both the processing facility and the admin building.

AutoTurn runs performed by Maine Traffic Resources show that a WB-67 tractor trailer truck will need to use all of the access road to make the turn in and out of the facility in the area of the cul-de-sac making it unsafe for other vehicles, particularly for automobiles entering or exiting the parking lots. The access road needs to be widened in this area to assure that trucks do not need to cross centerline to access the facility. AutoTurn runs showed no issues at the Coldbrook Road intersection. The AutoTurn runs are attached for your information.

No stop signs or pavement markings are shown on the plans. Who has the right-of-way at the cul-de-sac? Appropriate stop signs and pavement markings, such as stop lines, should be shown on the plans.

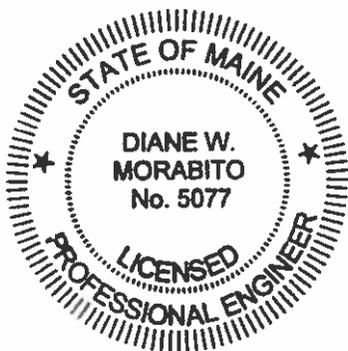
Is a speed limit being posted on the access road?

10. **Right-of Way.** The plan shows a 100' wide right-of-way extending beyond the facility. It is understood that this a utility corridor that extends to Ammo Industrial Park and that it will have a gravel surface. It is understood that this access is to be to be gated by no gate is shown on the plans,

To summarize, Maine Traffic Resources requests a complete Traffic Impact Study (TIS) to be provided based upon standard traffic engineering practice in Maine. The TIS is required to demonstrate to the Town of Hampden that this project will not have a significant impact on safety or traffic operations and that no off-site mitigation is required to accommodate the proposed waste processing facility. As stated in Section 4.1.3, the burden of proof is upon the applicant. The off-site Traffic Impact Study should include the following at a minimum:

- Peak hour trip generation analysis. This may best be obtained by performing trip generation counts at the existing Orrington facility and appropriately adjusting them to both Hampden and peak summer conditions for waste facilities.
- Peak hour trip assignments based upon the intended haul routes and area traffic patterns to determine study area and traffic operational impacts.
- A truck Management Plan detailing how the waste trucks will be mandated to only use the haul routes or off-site mitigation as needed to address the Town of Hampden's concerns.
- Associated turning movement counts at study area intersections, appropriately factored to peak summer conditions.
- Level of service calculations for study area intersections under existing, no-build and build conditions.
- Auxiliary turn-lane warrants for Coldbrook Road at the site drive.
- Additional accident review for the expanded study area.
- Sight distance review at the intersection of Main Road North and Coldbrook Road since it has been flagged as a concern of the Town.

As always, if you have any questions regarding these preliminary review comments please do not hesitate to contact me. I'll look forward to continuing my review when the additional materials are received.



Sincerely,

A handwritten signature in black ink that reads "Diane W. Morabito". The signature is fluid and cursive, with a long horizontal stroke at the end.

Diane W. Morabito, P.E. PTOE
President

**WB-67 @ 8 mph
Hampden, Maine
March 25, 2016
Right In and Right Out**

