

Subject: Critique of Proposed Residential Development Plans for Port Wallace

I wish to express serious concerns regarding the two major residential developments proposed for Port Wallis. Concerns arise in areas of Transportation, Environmental and General Suitability of the proposed details. This message will concentrate on zoning issues and transportation. I plan to attend your meeting on June 14 and will be pleased to respond to any questions regarding these points.

I am not alone in the concerns that I have expressed. Every person in Port Wallace with whom I have communicated is concerned that our already crowded roads will become totally tangled with traffic, that our lakes will be polluted and that the quality of life in this community that we love will be downgraded in a manner that will never be recoverable if these projects proceed as presented.

This presentation puts some numbers on the situation that are realistic and points to some of the inaccuracy and bias that exists in the proposals for development. It also offers the scenario that will follow a decision to proceed with these projects and the negative aspects that will result. Please ensure that this document is sent to all members of the PPC and councilors.

Respectfully submitted,

Doug Skinner, P. Eng.

Conrad's Lands Proposed Subdivision

With respect to the proposed Conrad lands housing development between the Waverley Rd. and Highway 107:

This land (except for a portion close to the Montague Rd. intersection) is, (and has been since 1961), zoned R-1 (single family residential) as are the adjacent and nearby lands on the Waverley Rd., Lake Charles Dr., and Craighburn Subdivision. Rezoning this land to allow multi-family buildings is inappropriate to the neighbourhood and will make a disproportionate contribution to traffic. If the existing proposal is to proceed the population of this small area could be 1728 at 3 persons per unit. It should remain R-1 with a population density equivalent to the adjacent neighbourhood. A lower density layout with single family homes would suit the neighbourhood, allow better flexibility for layout and access, allow more green space, and contribute less traffic to the transportation system. Similar comments are appropriate to the Clayton proposal.

Transportation issues specific to this section are also concerning. The access to the aforementioned area, as shown on the preliminary plans, is from internal streets connecting to the Waverley Rd. at two points. The access from Waverley Rd. south of Lake Charles Dr., as shown, is dangerously close to the long curve north of the Montague Rd. intersection and the proposed road meets the Waverly Rd at an oblique angle. A Dartmouth city engineer advised me that side streets should meet main roads at a right angle. A road has been rough-cut closer to Lake Charles Dr. but it is not in the location shown on the drawing. The location of the rough-cut road is further from the curve and might provide adequate visibility but this should be confirmed by traffic

engineers. The second access to the new subdivision is about 1/2 mile closer to Waverley. This location is within a series of gentle curves and will provide poor visibility for exiting vehicles unless the sight lines are improved.

No connection is shown within the development to allow its residents to reach the proposed commercial section next to the Montague Rd. without first exiting to Waverley Rd. The commercial development access is unclear but it will be in conflict with the busy intersection which already includes the Montague Road collector for the 107, Waverley Rd., Charles Keating Drive and Wilcot Lane. A major upgrade of this intersection is anticipated to accommodate traffic from the nearby proposed Clayton lands development.

Transportation Study

The Pre-design Baseline Transportation Traffic Study presented by Paul Burgess P. Eng. dated August 14 raises questions.

Braemar Drive / Waverly Rd. from Highway 111 Intersection to Montebello Dr.

This roadway section is reported to presently carry a peak of 1700 vehicles per hour and the capacity of that road is stated to be 1900 vehicles per hour. A little math shows that 1700 vehicles per hour is 28.3 vehicles per minute. That is a vehicle every 2.12 seconds. The Nova Scotia Drivers Handbook recommends NO LESS than 2 seconds **between** vehicles, and longer than that when driving conditions are not ideal. If vehicle length is factored into this calculation (the 2 seconds refers to the gap) allowing 6 meters as average vehicle length, and using 13.9 meters per second as the speed limit (converted from 50 km/hour), this adds another 0.43 seconds to the minimal time to pass one vehicle. So, the minimal time for each vehicle to pass a point safely is approximately 2.5 seconds, which makes the maximum capacity of the roadway $3600/2.5 = 1440$ vehicles per hour. This road is already overloaded according to NS government recommendations for vehicle separation in **ideal conditions**.

The conclusion that Braemar Dr./Waverley Rd. is near or over safe capacity is no surprise to those who use it. The calculated maximum is further complicated by other restraints related to the configuration of this roadway. In the full text of Mr. Burgess' report, he noted in conclusion a number of issues that further discredit the capacity of this road section but these were not presented with the overview summary and were not applied to reduce the projected capacity. One factor noted is that this road functions as a major collector but does not have adequate right of way and access controls. A number of driveways from businesses and homes, the presence of bike lanes, and 11 uncontrolled side streets intersecting within this one mile section are detrimental to its capacity.

The real capacity of a roadway is not determined simply by the theoretical rate of passage but also involves the ability of vehicles to access the traffic flow and all events

and factors that can cause traffic interruption. Many of these factors exist in the roadways covered in this study but the projected capacities have not been discounted. The proposed solution to the capacity of this section is to widen it to four lanes from the 111 to Montebello Drive. Land does not exist to widen without filling a portion of Lake Mic Mac and reducing the setback of existing homes and businesses. Is this acceptable to HRM or to the community? Is it ethical to downgrade an existing community so that a new one can be developed? What will be the opinion of the existing residents?

Montebello / Waverley Rd. Intersection

The Montebello drive intersection is reported to be operating at capacity. The report proposes to improve the capacity by upgrading the signals and adding a right turn lane at Montebello Drive. There appears to be no land available for a turning lane, requiring more expropriation and, while the turning lane may increase capacity for the evening commute, it will have no benefit to morning capacity as most cars leaving Montebello turn left to go south. The delays caused by traffic light changes and crosswalk use will make it difficult to gain significant capacity. An outstanding development proposal for an apartment building at this intersection would further compound the traffic issue and limit the ability to expand the width of the roadway.

Caledonia Rd.

Caledonia Rd. capacity analysis has similar issues with uncontrolled access. A 3 way Stop sign at the intersection of Dunbarton Ave. was not mentioned in the report. Since this report was prepared, the Caledonia School zone speed limit has been reduced to 20KM per hour. Stopping school busses reduce capacity during the morning commute and the presence of children is frequent during the p.m. commute due to nearby athletic facilities and playgrounds and Thomas More Church.

Highway 107 Montague Rd to 118

There is little, if any, capacity remaining on the 107 between Montague Road and the 118. The traffic study shows present peak at 1600 vehicles per hour with 130 VPH capacity remaining. If the 2 second gap rule is applied and the average vehicle length is 6 meters, the time to pass one vehicle at the 100 km limit is $2s + (6 / 28m/s) = 2.21$ seconds which safely allows 1630 vehicles per hour IN IDEAL CONDITIONS. This section already reaches its capacity during the evening commute which is easily confirmed by observation. The proposed plan to widen this section of the 107 to 4 lanes can gain an additional 630 VPH at peak but this capacity increase will need to be shared with vehicles coming from and to expanding communities to the east.

Traffic Peak Prediction

If these developments proceed as planned, the Clayton submission of Feb. 2017 estimates a population increase of 7600 at full build out. A more realistic population estimate is suggested to be 8148 (2716 units x 3 persons) for the Clayton

area plus 1728 for the Conrad development (576 x 3 persons.) The population of the Port Wallace area will be increased from approximately 5000 persons to 14,876.

The Clayton Submission claims that the commute traffic addition from its development will be about 933 vehicles per hour morning and 1032 VPH in the p.m. From the existing population of 5000, an evening traffic flow peak in the order of 3200 VPH is generated yet the additional 7600 persons is estimated by Clayton to contribute only 1032 vehicles to the peak. That estimate is incredible. They are suggesting that a population increase of 150% will increase traffic by only 32%.

In attempt to rationalize the Clayton estimate, we can discredit the peak existing p.m. traffic by deducting an allowance for transient traffic, that is, traffic that is not generated in the study area but that is just passing through and is not related to the size of the study area. That might be 500 VPH, leaving a net peak of 2700 VPH that is generated by the 5000 persons in the study area. 2700 VPH is the present total of the peak flow on Braemar plus Caledonia Rd. If we reconsider the percentages using this lower number for existing traffic generated from the study area, it shows that the Clayton claimed traffic peak increase would be a 38% from a population increase of 150%. Still incredible!

The peak flow that would be generated is realistically more likely to be in reasonable proportion to population. With the full build out of the two proposed developments, the population, based on 3 persons per unit will increase by $8148 + 1728 = 9876$, from an existing **5000** to **14,876**, essentially tripling. The peak evening commute traffic flow will realistically triple to $2700 \times 3 = 8100$ vehicles per hour. The proposed road improvements are claimed to double the capacity of Braemar Dr. and highway 107. Adding in the claimed extra capacity in Caledonia Rd, this would increase the theoretical peak flow capacity by 1440 (Braemar) plus 1600 (Highway 107) plus 300 (Caledonia) = 3430 VPH to handle a peak increase of 5200 VPH. Capacity falls short by almost 2000 VPH and there is further bad news. The theoretical increase must be discounted because of the large number of factors listed by Mr. Burgess in his summary, which has not been factored in. Delays from pedestrian crosswalk use, stopping busses, left turning vehicles and other interruptions all will factor into the reality of the situation to reduce this capacity further.

There is another flaw in the report of Mr. Burgess. The report assumes that the peak traffic flows will occur in the p.m. commute based upon bridge traffic. This may be correct and is a reasonable assumption in a preliminary analysis. However, constraints related to activity and traffic flow direction may lower the effective capacity of the roadway causing the morning commute to experience more severe congestion, even at lower VPH rates. For example, stopping school busses cause considerable delays in the morning as several routes use the Waverley Road and Caledonia Rd. Most of the a.m. traffic entering the Waverley Rd. and Braemar Drive from uncontrolled streets and driveways is turning left. Addition of right turning lanes at the Montebello and Breeze Drive intersections will contribute to p.m. capacity but will not have significant benefit to a.m. capacity.

The Doomsday Scenario

This is what I believe will occur if these developments are allowed to proceed as proposed. Typically, no, or few, road capacity improvements will be made until the traffic jams begin. This will occur very soon after the first phases of the proposed developments are occupied. The Braemar Dr./ Waverley Rd. area will experience the first major back-up. The need to widen this section and twin the 107 between Montague and the 118 will clearly become urgent. These projects should not proceed simultaneously as the traffic will be badly disrupted by each one. For a period of two to three years, Port Wallis will be in traffic hell while these projects are consecutively completed. The users of the Waverley Rd. will already have experienced a year or more of delays and disruption as construction of the sewer system to serve these projects is required prior to home construction. Ongoing build-out of the subdivisions will continue during road improvements.

Depending on the percentage of total build-out of the new subdivisions when both major highway projects are finished and traffic returns to "normal", the population increase might be at median level such that the improvements bring traffic capacity close to required levels. However, as homes continue to be built the traffic congestion will increase until we have amazing gridlock throughout Port Wallace. The options for improving the situation will, at that time, have been exhausted. There will be no option to further widen Braemar Drive or the 107. The only routes to enter or exit Port Wallace are Waverley Rd., Caledonia Rd., or Highway 107 via the Montague Rd. interchange. Everything will be maxed out. The new subdivisions may slow its growth but the developers will continue to the limit of their plan permits. The legacy is that the community of Port Wallace will suffer serious reduction in its quality of life. Safety will be compromised. Busses will be unable to maintain schedules, caught in traffic congestion. Turning left from driveways into a line of stalled commuters will be extremely difficult and the peak traffic periods will be extended with frustrated drivers who will lose their courteous character that now characterizes their actions.

Solution?

Until the transportation issue is resolved there should be no approval of these projects. There will be no excuse for even a transient worsening of the traffic overload on Waverley Rd. should present planning fail to face the reality of the situation. In both subdivision areas, large lot size and low population density should be planned. Additional parkland would be a good option. Although this increases per-lot development costs, it is the only strategy that is consistent with the transportation system capacity as it exists, or can be reasonably expected to be developed with future improvements. The transportation report indicates that the area is unlikely to have a high use of public transit or active transportation, meaning that any increase in population will bear directly on the vehicular traffic level. All reports and application

documents should be updated and coordinated to present consistent and current information.

A detailed traffic analysis is required, based on thorough surveys of existing conditions and considering all factors and capacity constraints, including analysis and projections for both morning and evening commutes. The traffic study must also consider impact on Highway 118 and Highway 111 as they are integral to the system. When this is complete and a reasonable, realistic and accurate ultimate capacity is established, residential expansion plans can be prepared to fit within a population density that can be adequately served by its transportation system.

Is it reasonable, practical and ethical to expand Braemar Dr./ Waverley Rd. to four lanes?

All major transportation improvements will need to be made prior to any population growth so that the disruption caused by the road work is not exacerbated by increased traffic levels. This approach will predict the realistic transportation capacity, costs and consequences of development. If that determines that the developments cannot proceed on reduced scale due to preparation and servicing costs required by the developers, the city and the province; then they should be abandoned.

Conflict of Interest

The proponents of the two proposed subdivisions are in business to generate profit. The best way to maximize that is to reduce the per-unit development expense by maximizing the population density. That strategy will produce a population far in excess of that which the transportation system could support with any modifications or improvements identified to date.

The developers interest is to build, sell and leave. Their concern for the quality of life in the existing community that surrounds their development and the long term impacts of their development is trumped by profit margin.

The expert reports supporting this development are many and voluminous. They span a period of about 9 years and, in some cases do not reflect changes in areas under consideration or the size or intent of the developments. Our city planners have the objective and responsibility to the overall community to find solutions for future growth. It is their task to evaluate the studies and proposals to determine which projects are suitable and consistent with all required standards. Executive summaries and glossy presentations frequently omit the details that change the impact of issues. Planning must respect the life quality of existing communities and the influence of new developments. Planners must not accept information on face value and uncompromised vigilance must be exercised in areas where safety or standards are in doubt.

Port Wallace is an old community, developed almost two hundred years ago. Expansion came very rapidly after the opening of the McDonald Bridge and the

area was annexed by the City of Dartmouth in 1961. The community grew without the benefit of planning that could recognize the size that it would become or the limitations that the infrastructure would have on its ultimate development. The roadway system is based upon the Waverley Rd. as its major collector. This is a narrow road based on an old wagon path with many curves, hills, and uncontrolled intersections. Numerous changes have been made to improve this road over several decades but modern standards affecting layout and traffic flow could not be achieved and the accessible areas are now built up, making further change unlikely. Present commute traffic levels are clearly at the capacity limit, annoying but tolerable. Increase to traffic congestion, as would result from these proposals, cannot be tolerated nor are changes possible to reasonably accommodate it.

Our planners need to review developer proposals more critically. The traffic levels predicted from Clayton are badly underestimated and unrealistic in their projection of travel direction. I question their assumption that over 50% of the commuter traffic generated from their development would travel north to the 107, That is not the pattern of the existing community and it cannot be realistically assumed for future. All of the inaccurate projections support their proposal for maximum profit. Our planners must be more diligent to expose such unrealistic projections, recognize that all documents must be critically examined and be constantly vigilant to protect the quality of existing communities. The proposed projects, while attractive to resolve need for future housing, will create negative impact on life quality in Port Wallace due to traffic conditions and environmental issues. The decision and parameters surrounding these projects must be correct before any approval is issued. Errors in the planning and approval process will produce irreversible negative impacts on our community.

Baseline Services Reports

The 2009 baseline servicing study prepared by CBCL does not include water and sewer services for the Conrad lands subdivision. This study was based on a future population increase (6000) that is significantly smaller than the development presently proposed. That will almost certainly require upsizing of mains from those proposed in the study. This report needs to be updated before the cost of servicing can be determined.

The servicing report prepared by Kendra MacKenzie P. Eng. of Halifax Water makes it clear that the existing wastewater system serving the Waverley Rd. area is at the limit of capacity requiring connection to the North Dartmouth trunk sewer before any further development is initiated. She also points out the importance of maintaining storm water requirements including retention consideration.