

Final Report
January 2009

Octagon Pond Plan

FAIRVIEW INVESTMENTS



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1.0 INTRODUCTION

1.1 OVERVIEW

The Octagon Pond Area Concept Plan is being submitted on behalf of Fairview Investments Limited for approval by the Town of Paradise. With a strong demand for housing in the Town of Paradise and the Town's desire for development to be planned and well thought out, Town Council had requested that a long term comprehensive plan be produced prior to development occurring in the Octagon Pond area.

Fairview Investments, being the primary land owner in the area, has taken on the challenge of producing a comprehensive plan for the lands in the Octagon Pond and Rocky Pond area which encompasses approximately 263 hectares (650 acres) of land. The planning exercise that Fairview has undertaken has produced a vision for the next significant growth area for the Town and a plan that addresses the issues raised throughout the process. The plan represents many decades of development and will be a significant evaluation tool for any proposed future changes. The plan contains sound principles and goals for successful community building including walkability, connectivity, housing choice and access to amenities.

chapter 2

2.0 LOCAL CONTEXT

2.1 TOWN OF PARADISE

The Town of Paradise is a community of approximately 14,000 people located on the northeast portion of the Avalon Peninsula in Newfoundland and Labrador. Paradise is a rapidly growing Town that has almost doubled in population since 1991 (due to growth & amalgamation). The traditionally rural character of the Town is quickly changing as Paradise is viewed as a desirable location with its easy commuting distances to the cities of St. John's and Mount Pearl, access to the Outer Ring Road (Trans Canada Highway) and affordable housing prices with one of the lowest average house prices within the St. John's metro area.

The Town encompasses 26.24 square kilometres (7,225 acres) of land and is bounded by the City of St. John's to the south and east, the City of Mount Pearl to the east, the Town of Conception Bay South to the west, the Town of Portugal Cove-St. Philip's to the northeast and Conception Bay to the north. Natural drainage for the Town divides between Neil's Pond and Octagon Pond where the southwest flows through the Manuels River basin to Conception Bay and the east towards St. John's through the Waterford river basin.

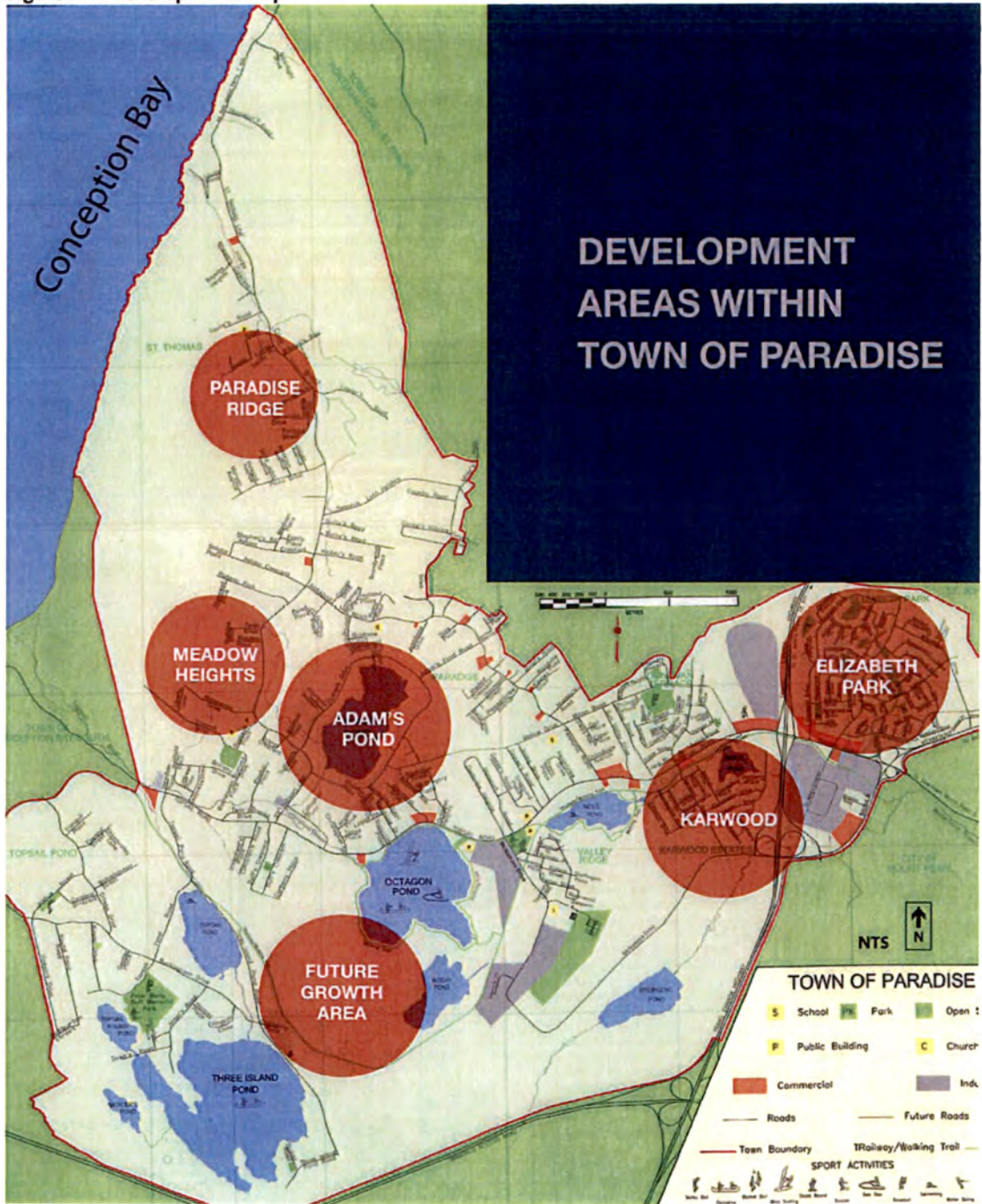
Parts of Paradise have been inhabited since the late nineteenth-century. Traditionally Paradise was a rural area where people enjoyed summer homes on the many ponds in the Town including Topsail Pond and Three Island Pond. The Town of Paradise's municipal boundary was an amalgamation in the 1990's of the former Towns of Paradise and St. Thomas, Elizabeth Park/Evergreen Village and Topsail Pond/Three Island Pond and small portions of the Towns of

Conception Bay South and St. Philip's and the City of Mount Pearl. A large number of residents work in St. John's. Employment in Paradise includes work in the service industries including manufacturing, retail, trades, construction and government.

In terms of development, a portion of Paradise is not serviced by municipal water and sewer. This is changing as with new development servicing is being extended into new areas. The community of Paradise developed along the once rural Topsail Road. The traditional form of development in Paradise was focused along Topsail Road and new roads were built off Topsail Road spreading out development in linear ribbon form. With newer subdivisions occurring within the Town, the Town's Municipal Plan is directing development to be contiguous and to fill in existing areas to reduce ribbon development and take advantage of municipal services. Land uses within the Town are primarily residential with one large industrial area and some personal service and retail uses distributed throughout the Town. Larger retail commercial uses are located on the eastern edge of the Town and along Topsail Road. Recreational and public uses are dispersed throughout the Town. The major roads connecting with Topsail Road include Paradise Road, St. Thomas line, and the Trans Canada Highway. The Trans Canada Highway and the Manuels Bypass Highway bound the eastern and southern edges of the Town.

Paradise has been experiencing significant growth and the development of many new communities over the past few years. Some areas will continue to experience moderate development as Elizabeth Park builds out and smaller new developments begin along St. Thomas Line such as Paradise Ridge and Meadow Heights. Areas that are currently experiencing the most significant growth are the communities of Karwood and the area around Adam's Pond. The plan area is centrally located within Paradise and stands to be the next significant future growth area for the Town.

Figure 2.1: Development Map



2.2 PLAN AREA

The plan area encompasses approximately 263 hectares (650 acres) of land south of Topsail Road west of Octagon Pond. The plan area is bounded by Topsail Road to the north, Octagon & Rocky Ponds to the east, existing Rural Residential area (Three Island Pond Road) to the west and the Manuals Highway to the south. Octagon and Rocky Ponds are major amenities for the area.

Figure 2.2: Study Area



Site Photos:



2.3 EXISTING FEATURES

The lands are in a natural state and a number of footpaths indicate that the area has been used for walking/hiking. Octagon Pond currently has a trail system around it put in place by the Grand Concourse Authority. Octagon Pond is a focal point for the Town of Paradise annual Sunsplash Festival.

An existing quarry covers approximately 30 acres of land along the south boundary of the plan area. The T’railway, a former railbed now a Provincial trail system, runs through the site from east to west just south of Rocky Pond. An electrical transmission line also runs east-west through the property just north of Rocky Pond.

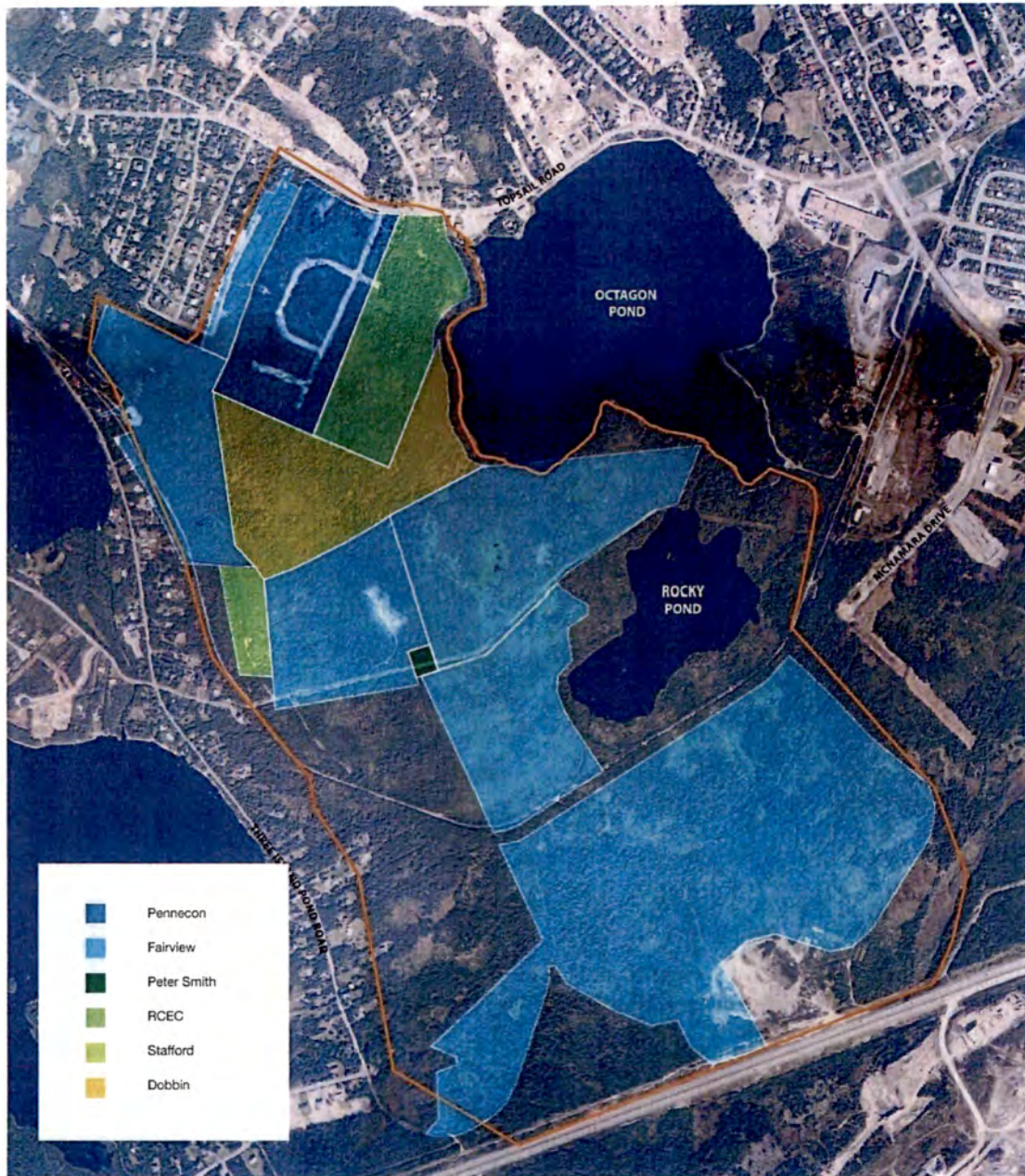
2.4 SURROUNDING USES

With rural residential areas to the west of the plan area and light industrial neighbours to the east, the plan needs to properly address the transition and adjacency of these uses and not cause undue negative impacts or conflicts. The rural residential areas of Three Island Pond, Topsail Pond and Duff’s Crescent area are very passionate about their rural lifestyle and the light industrial neighbours do not want their operations being impacted by a new community.

2.5 LAND OWNERSHIP

Fairview Investments is the primary land owner in the area. As the land ownership map indicates, there are a number of other large and small holdings within the plan area. Comprehensive planning typically puts aside property lines in an attempt to make the best planning decisions for the area regardless of ownership as this can change. However, coordination of landowners will be important to the overall realization of the plan.

Figure 2.5: Ownership Map



chapter 3

3.0 SITE ANALYSIS & BACKGROUND

3.1 TOPOGRAPHY

The plan area has a varied topography. With the highest point north-central to the site near Octagon Pond rising up 30+ metres from Topsail Road. Moving south, the slope gradually levels out to the base of Rocky Pond where it starts to climb again towards the south of the plan area and the quarry. The highest elevation point is at Topsail Hill with an elevation of 182 metres.

A small area of land to the west side of the plan area has significant slopes of over 20%. Some areas have slopes between 15 -20% and other areas near the ponds and at the crest of the hill are relatively flat.

3.2 VEGETATION

The land within the plan boundary is a part of the northern boreal ecoregion. In North America, the boreal ecoregion extends from Alaska to Newfoundland, bordering the tundra to the north and touching the Great Lakes to the south.

The most dominant tree species are conifers that do well in the thin, acidic soils and harsh climatic conditions. Black and white spruce are characteristic species of the area with Larch, and Balsam Fir. There are some deciduous trees mixed in

among the conifers, White Birch and a few native Maples. The site has a number of bogs, and wetlands, mixed in among the forest and holding water. The key mammals would potentially be moose, beaver, snowshoe hare, red fox, mink, otter and squirrel as well as birds such as crows.














Some disturbance of the site has occurred with cutting for domestic wood purposes and a section of the land been cleared to facilitate development. A proposed road off Topsail Road was rough graded but never completed.

Development of the area will remove a significant amount of the tree cover due to grading however maintaining areas of the tree cover is an important amenity for the community and for wildlife. The boreal forest is very susceptible to wind damage and therefore it is best to maintain it in vegetated patches and linear corridors, particularly around waterbodies and wetlands. These corridors act as conduits for wildlife to access the waters edge and to maintain the ecological integrity of wetlands. These corridors must be wide enough to protect the boreal forest from wind damage once clearing to support development takes place. No thinning of the protected forested areas should be permitted, again to reduce the potential for blow downs.

3.3 OPPORTUNITIES & CONSTRAINTS

The concept plan has to consider many things including the surrounding land uses, land form including wet areas, drainage courses, slopes, flat areas, vegetation, servicing capacities, and existing features such as major roads, the quarry, the T’Railway, and the transmission line. All of these considerations influence and inform the plan.

Figure 3.3: Site Analysis

-  Existing Roads
-  Surrounding Residential Areas
-  Surrounding Industrial Area
-  Quarry (Areas above 190M contour)
-  T'Railway
-  Brooks and Wet Areas
-  Slopes between 15-20%
-  Slopes greater than 20%
-  Relatively Flat Areas
-  Highest Point (Topsail Hill)
-  Transmission Line
-  Existing Footpaths
-  Development Boundary (Water/Sewer)



3.4 MARKET & DEMOGRAPHICS

3.4.1 Demographics

The Town of Paradise in the last 10 years has experienced higher population growth than originally anticipated. A stronger Newfoundland economy, proximity to the cities of St. John's and Mount Pearl, and increased accessibility due to the Outer Ring Road (TCH) have helped Paradise earn its reputation as being one of the fastest growing communities in Atlantic Canada.

Overall the province of Newfoundland and Labrador has seen a decline in population since the last federal census data. Although the decline in population has been slowing province wide (505,469 in 2006 down from 512,930 in 2001) the Town of Paradise and the St. John's metro area have experienced significant growth.

Town of Paradise Statistics			
<i>*source Statistics Canada</i>			
Year	1996	2001	2006
Population	7,947	9,598	12,584
Population change	8% (since 1991)	20%	31%
Annual change	1.55%	3.85%	5.57%
Average household size	3.1	2.9	2.8

The Town of Paradise Municipal Plan (2004-2014) had assumed an annual growth rate of 3%. The actual annual growth rate was 3.85% between 1996 and 2001 and 5.57% between 2001 and 2006, higher than expected. The average household size (persons per unit) has been declining which is consistent with the Canadian trends of smaller families. In 2006 there were on average 2.8 persons per household, down from 3.3 in 1991.

The total number of private dwellings in the Town of Paradise according to the 2006 Canadian Census was 4,734 and the average age was 35.1 years. The overall gross density for Paradise is 1.74 persons per acre (ppa) or 0.66 units per acre (upa). Residential development consists of areas of smaller lot suburban housing with municipal services and larger lot rural areas without municipal services.

The Town of Paradise is still experiencing positive growth with a current population estimated at over 14,000.

**source Statistics Canada and Town of Paradise website*

3.4.2 Housing Market Conditions (First Quarter 2008)

Local

The St. John's metro area, which includes the cities of St. John's and Mount Pearl, the towns of Paradise, Conception Bay South, Torbay, Portugal Cove-St. Philip's, Logy Bay-Outer Cove-Middle Cove, and Bay Bulls, has experienced a 33% year-to-date increase in housing starts over last year. With 172 starts in the first quarter of 2008, May alone saw an unprecedented increase of 224 for a total of 456 housing starts within the St. John's metro area. The limited supply of existing homes, stable consumer confidence, economic growth and positive net migration are some of the reasons for the demand for newly built homes according to CMHC. Many buyers are unable to find homes to meet their needs in terms of both price and amenities and are turning to the new home market.

The Town of Paradise has experienced the highest number of housing starts (single detached and multiple units) of all the areas within the St. John's metro area in the first quarter of 2008 with a total of 71 starts compared to 45 starts in the City of St. John's. That was a 97.2% change over 2007. The average house price in Paradise is one of the lowest in the St. John's metro area at \$206,128 (Q1 2008) second to Conception Bay South at \$185,846. The City of St. John's and the remainder of the metro area ranged between \$215,191 and \$231,084.

The housing market for the St. John's metro area is expected to do well for the remainder of 2008 and into 2009 with projected yearly housing starts being 1725 for 2008 and 1750 for 2009 respectively (including both single detached and multiple units).

Provincial & Regional

New housing starts for the province are being lead by the St. John's metro area with Newfoundland and Labrador experiencing a total of 471 year-to-date, 456 of which occurred in the St. John's metro area. New housing starts throughout Atlantic Canada experienced approximately a 20% increase since the previous year with a total of 996 new housing starts.

National

For the major cities in Canada, the number of housing starts was down 5% to 18,371 compared to May 2007. Single detached housing starts decreased while multiple starts saw a 4% increase since the previous year indicated a move in Canada's major urban centres towards smaller more compact forms of housing likely due to decreasing affordability for single detached products as well lifestyle choices such as downsizing and maintenance free living .

**source CMHC Housing Market Information on line and Chris Janes, Senior Market Analyst CMHC Newfoundland & Labrador*

Future Canadian Demographic & Housing Trends

Canada's population is growing at a slightly faster pace than in recent years primarily as a result of immigration. The composition of the Canadian population is changing and expected to continue as senior and immigrant populations continue to grow. Urban areas are experiencing the majority of the growth in Canada 86% from 2001 to 2006. The past decade has seen stronger economic gains and robust employment will continue to support housing demand.

The Canadian population outlook and the economic forecasts for Newfoundland and Labrador are positive. Beyond 2008, Hibernia South and investment in the Hebron project and nickel processing facility in Long Harbour are expected to ramp up. Employment and income growth are expected to be solid fueling the demand for more housing. What this means for the Town of Paradise is that it will likely continue to experience development pressures and demand for housing into the near future creating a need to bring on stream more land for development to satisfy demand.

**source CMHC and Government of Newfoundland & Labrador*

chapter 4

4.0 PROJECT VISION

Good planning principles should be the basis of any plan. Smart Growth is a term used to describe sustainable planning. Smart Growth principles and objectives help to guide new development to be more pedestrian and transit-oriented, have a greater mix of housing choices, commercial and retail uses, and preserves open space and environmental amenities. However, there is no ‘one-size fits all’ solution and communities must create a vision that works for them. This plan is based on good planning principles that will work for Paradise.

The vision for the plan is to create smaller neighbourhoods within the larger community with an **emphasis on walking** and connectivity. **Provide housing choice** so residents can ‘age in place’ and find housing suitable for all stages of life without leaving their community. The plan provides for a **mix of uses** mainly some commercial retail opportunities. Gives people a choice to use **alternative transportation** means such as walking or biking through the design of the road network. **Protect the environmentally sensitive areas** within the plan. Ensure that open space allows for different recreational opportunities. **Integrate natural features into the plan** and **ensure communities are attractive** and well designed. The final critical component of the plan is to allow **flexibility and adaptability over time** to address markets fluctuations, changing Council policies and varying lifestyles.

chapter 5

5.0 THE PLAN

5.1 LAND USES

The plan envisions a new residential community for the Town of Paradise made up of 4 neighbourhoods based on walkability. The community structure is derived from a 600 metre radius (5-10 walk) as the primary design principle. The land use and transportation patterns of the concept plan are described on the following page.

5.1.1 Residential

The primary land use for the plan is residential and it will consist of mostly Residential Low Density (RLD) and Residential Medium Density (RMD) districts containing single family homes. Larger lots will be located along the western perimeter of the site and between Octagon and Rocky Ponds to transition onto the rural lands to the west and to help maintain tree coverage between the ponds. The large lot areas will be Residential Low Density (RLD) district. The overall residential unit count for the plan is approximately 2,800 to be developed over a 25-40 year time frame (based on current growth rate).

There are a total of seven sites within the overall community allocated for higher density housing four within the central areas of each neighbourhood and three near the ponds and the southern entry point of the community. The higher density sites should be flexible in the concept plan to allow for enhancing market

conditions and Council's policies at the time of development. Prior to zoning amendments for these sites, a decision on the appropriate district should be determined. The higher density sites could have a Residential Medium Density (RMD) or Residential High Density (RHD) district. It is the intent of the plan to have higher densities at these locations such as multi-dwelling buildings and/or townhouses. At the time of development if market conditions do not warrant higher density development these sites could revert to low density housing although this would not be the desire of the plan. The higher density sites should be indicated on the plan for marketing purposes so people buying into the community are aware of the potential density on the sites. The maximum number of multi-dwelling units anticipated at this time is approximately 360; approximately 65 units at each of the higher density sites and approximately 40 units at each neighbourhood node.

5.1.2 Neighbourhood nodes

There are four neighbourhood nodes created in the plan located approximately at the centre of the four 600 metre walking radii. The purpose of the neighbourhood node is to provide for a meeting place/focal point within a walkable distance for the surrounding residential area. These nodes contain higher density residential development; neighbourhood scaled local commercial and open space of approximately 1 acre in size. Connectivity of the neighbourhood node to the surrounding neighbourhood should be achieved through the convergence of roads and pathways on the node. Where possible, the open space should take advantage of the views to the ponds and be sited for public accessibility.

The neighbourhood nodes also provide an ideal location for any future public uses that are identified such as a school. At the time of preparing the plan, the Eastern School District has not indicated a need for a school in this area. New elementary school sites have been identified for the Town of Paradise (see Section 9.2) however other school sites such as a junior high school have not been identified. In keeping with the design principle of the plan for a walkable neighbourhood with distinct focal points, the neighbourhood nodes should be the first locations considered for a school site once the need has been identified by the Eastern School District. At this point, it is not anticipated that a school will be required within the first 5 years of the development or in the first neighbourhood node (close to Topsail Road). Future school sites would likely be identified beyond the 5 year timeframe and would be located at the second or third neighbourhood nodes. Rezoning of the desired lands will occur upon negotiations between the Eastern School District, the Town of Paradise and the developer.

5.1.3 Commercial

Local retail commercial uses are envisioned for the four neighbourhood nodes and could contain a convenience store, coffee shop, dry cleaning, day care, hair salon or other personal service uses. The local retail commercial sites can range in size and could be zoned Commercial Local (CL) or be allowed under the residential districts if flexibility is needed.

The Town of Paradise has rezoned a portion of the southeast corner of the plan (approximately 45 acres) to Commercial/Light Industrial (C/LI) district in an attempt to minimize the impact of the existing industrial area on the future residents of this community. The uses within the Commercial/Light Industrial site should be primarily retail or office commercial to minimize the impact on the residential areas and provide a transition from the industrial lands. Industrial uses should not be allowed in this area. The size of the Commercial/Light Industrial site may have an impact on the provision of local retail services within the community. At the time of rezoning, consideration should be given to reducing the size of this area in favour of ensuring the success of the local commercial within the neighbourhood nodes.

Another small retail site is planned for Topsail Road at the entrance of the community that could be zoned Commercial Highway (CHW). This site will serve pass-by traffic on Topsail Road as well as the proposed community.

5.1.4 Open Space

A variety of open space is provided in the plan. The highest order of open space is the existing Conservation area around Octagon and Rocky Ponds. This area is protected by the Province and consists of a 30 metre edge around the water bodies and a 15 metre buffer around water courses. The T’Railway is an open space corridor (formerly the old rail line) and is also governed by the Province. The T’Railway is an important existing east-west connector through the community. The former spur line that is a trail connecting to Three Island Pond Road will be re-aligned alongside the existing creek to create a nicer, more interesting, more natural walking environment. The connection will be maintained and will be designed with the context of the community.

In addition to the existing and protected open space features of the plan, approximately 65 acres of open space (10% of the plan area) should be allocated to this community. The plan envisions a number of different open spaces in terms of recreational uses, parks, trails and natural areas. The open space allocation includes: three large parks near the ponds ranging between 5-8 acres

in size, one acre parks in the neighbourhood nodes, a widened buffer along the transmission line to create a larger natural corridor, a large park at Topsail Hill marking the highest point, protection of additional wet areas where feasible, a number of smaller parks and playgrounds throughout the plan area and trail and pathway connections. Large sports and recreational facilities have not been included in the overall plan because of the master recreational plan approved by the Town to the east of Octagon Pond which includes amenities such as the Paradise Rotary Youth & Community Centre (constructed), soccer fields along McNamara Drive (constructed), a stadium, pool, courts, playgrounds, skate park, dog park, concert site splash park, etc. The trail systems within the community will link to this area.

Figure 5.1: Concept Plan



5.2 TRANSPORTATION

The road network has been planned to include a number of main roads that connect the community from Topsail Road to McNamara Drive. By having multiple through roads the traffic is dispersed, the speed can be reduced and the roads become easier to cross and walk along as a pedestrian. One large road through the community would serve to ease traffic along Topsail Road but at the expense of the community. The west side of the community would be disconnected from the ponds on the east side, pedestrian road crossings would be limited, all through traffic would use this road making it very busy and the speeds would likely be posted higher to give the through movement priority. Having multiple through roads designed in this manner allows for housing to front onto these roads which helps to make the road more walkable and keep speeds down.

The community will have two access points from Topsail Road and one to McNamara Drive. As the community develops, the second access to McNamara Drive will help to alleviate the traffic trying to access Topsail Road as McNamara Drive will provide a shorter route to access Kenmount Road for the residents living in the southern half of the community.

5.3 MUNICIPAL FACILITIES & SERVICING

All municipal servicing for the plan area and subsequent development will be designed and constructed to the Town of Paradise standards at the time when each phase of the development commences.

Water service will be installed throughout the entire development starting from Topsail Road and eventually will provide a network throughout the development from Topsail Road to McNamara Drive. The Town's water system is capable of servicing development up to the 190 metre elevation.

The sanitary sewer system will be installed through the initial development at Topsail Road and will provide sanitary discharge to the Town system. Sewage generated beyond the high point at Topsail Hill will, of necessity, require pumping to eventually bring it to Topsail Road. Based on the anticipated population growth for this area, we would anticipate future need for a relief sanitary sewer along Topsail Road from this development to the intersection

with St. Thomas Line. This will not likely be required for 15 – 20 years into the plan. The provincial government has been reviewing the possibility of permitting on-site sewage treatment for large lots. Should this be approved by the Province and accepted by the Town of Paradise, it could make a significant change in the nature and sewage disposal impacts for this development, particularly with respect to the larger lots and the areas farthest from Topsail Road.

Disposal of storm drainage from this development will be to the natural water bodies surrounding the development area and will be constructed as per the Town's standards at the time. At the present time, the Town has no special requirements for handling of storm drainage.

A concern of the area residents has been regarding the question of development impact on existing wells. It is considered prudent to carry out well surveys prior to commencement of construction at which time impact could be experienced on these facilities. A well survey would be conducted as required during construction in areas in proximity to rock excavation.

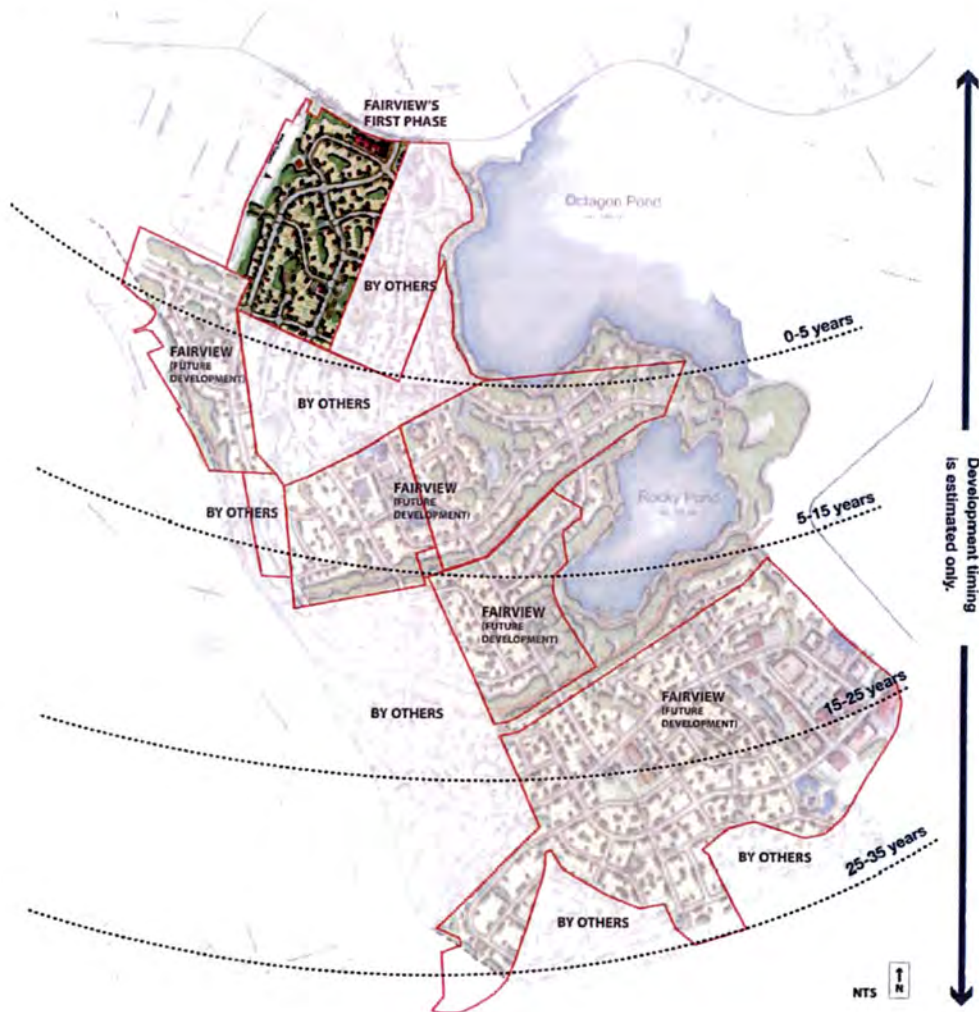
5.4 PHASING & COORDINATION

The development and construction phasing of the community will be determined once detailed engineering design begins. It is anticipated that development will begin off the Topsail Road first and progress southward as servicing gets extended from Topsail Road. Once development reaches past the crest of the Hill from Topsail Road infrastructure such as pumping stations will be required. It is unknown at this time if development could also start in the McNamara Drive area and will be determined at a later date. The entire plan could encompass approximately 2,800 residential units including single family houses and multiple dwelling units being developed over a 25-40 year time frame (based on current growth rates). The developer intends to build approximately 50 houses per year for the foreseeable future.

Because Fairview Investments is not the sole landowner in the area, coordination amongst all the landowners will be important to ensure the vision of the plan is realized. Open space allocation does not exactly match boundary lines as it was determined in the plan where the best location was for open space first. Coordination and agreements between landowners to balance open space dedication will be required. If not successful, the Town could consider taking a portion of the dedication as cash-in-lieu from one landowner to purchase the

required amount from another landowner. Care needs to be taken to ensure that value of the cash-in-lieu will purchase the equivalent amount of land. Coordination of servicing and over-sizing costs will also need to occur and can be facilitated by the Town. Fairview will be providing significant up front infrastructure to service the entire community in the long term of which the other landowners will benefit from once they go to develop. Servicing and development agreements should be signed to ensure the oversize costs and off site requirements are equitable amongst the Town and all landowners. The subdivision plans for the area should attempt to organize the road network so that entire road widths and lots are within one landowner's holdings where possible. This will allow for easy of coordination between development sites and allow developers to provide temporary turn-arounds (paved cul-de-sacs) where a road ends at a property line.

Figure: 5.4: Development Timing



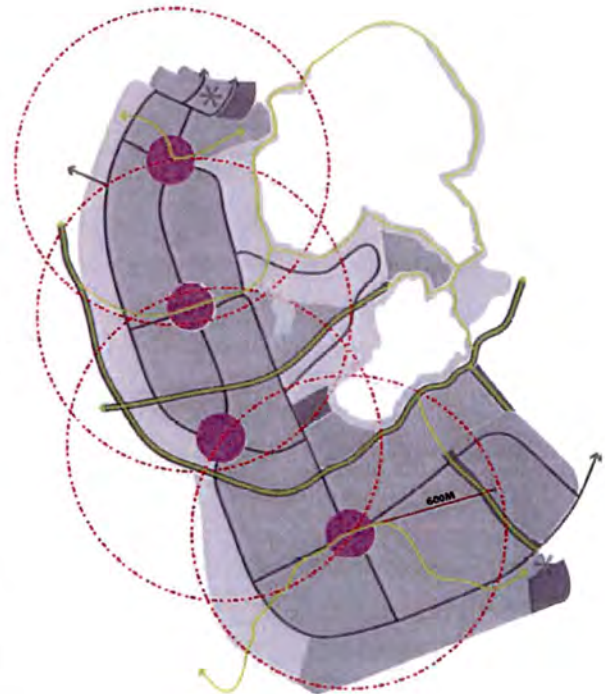
chapter 6

6.0 HOW THE PLAN ACHIEVES THE VISION

6.1 EMPHASIZE WALKING

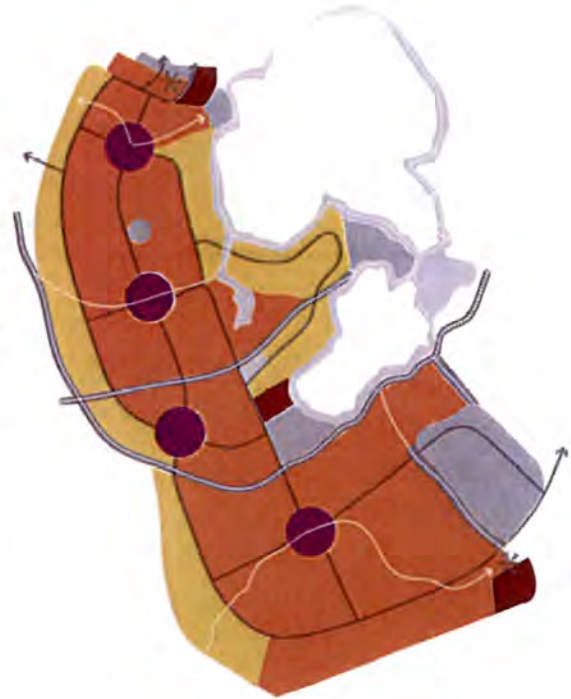
Walkable communities encourage healthy communities. The plan area has been organized by four 600 metre circles that represent a 5-10 minute walking radius. At the heart of each of these neighbourhoods, is a neighbourhood node consisting of 3 elements: open space (approximately a 1 acre park), medium-high density development and some local commercial. The neighbourhood node becomes the focal point of each area.

Open space trails systems that connect to surrounding areas and destinations such as ponds and the interconnected road that disperses traffic roads all contribute to a walkable community.



6.2 HOUSING CHOICE

The idea behind this project principle is to provide a variety of housing within the community that would allow residents to stay in the community for all stages of their lives and income levels. The concept of 'aging in place' allows people to start as a renter, buy a condo or small starter home as their first home in the community, they would then move up into a larger single family home if they have children and as their children grown and move out they can downsize into a condo and eventually into an assisted living residence for a more maintenance free lifestyle.



The current market demand is very strong for single family housing and the plan offers the single family product as well as alternative housing choices within each of the four neighbourhoods created within the community. In each neighbourhood node, there is an opportunity to provide higher density housing such as townhouses or multiple storey buildings. There are three sites near the ponds and the access to McNamara Drive that can be used for higher density living such as condos or assisted living residences. Attached housing can also be developed in areas throughout the community.

In addition to the higher density housing there are significant areas in the plan for larger lots. The larger lots not only offer an another housing choice for the community but also help to transition the urban form of development for this community into the rural form along Three Island Pond Road and Carberry Place/Duff's Crescent. The larger lots will also be located around the ponds to allow for the preservation of trees and to minimize the visual impact of development along the edge of the ponds.

Imagery - Housing Types

Assisted Living



Attached Housing



Condo – 3 storey



Condo - 3 storey



Imagery - Housing Types

Single Family House



Single Family House



Estate Lots



Townhouses



Imagery - Housing Types

Townhouses



6.3 MIX OF LAND USES

The plan makes provisions for retail/commercial uses. It is important to note that the demand for retail development is generated by a significant residential population. As the community develops there are opportunities in each of the neighbourhood nodes for some small scale local retail/commercial uses such as a convenience store, coffee shop, hair salon, daycare or other personal service uses.

A large area of the plan near McNamara Drive is allocated for larger scale commercial/light industrial uses that will likely serve the population of Paradise as well as this community. This Commercial/Light Industrial (C/LI) district will be included in the plan but the shape has been reconfigured to align with a small brook that now forms the western edge of the Commercial/Light Industrial (C/LI) site and to allow residential development closer to Rocky Pond rather than commercial uses.

A small commercial site is located at the entrance of the community along Topsail Road. This site will benefit from the visibility along Topsail Road and is less dependent on a significant population in this community to support it.

Imagery - Mix of Uses

Retail Buildings



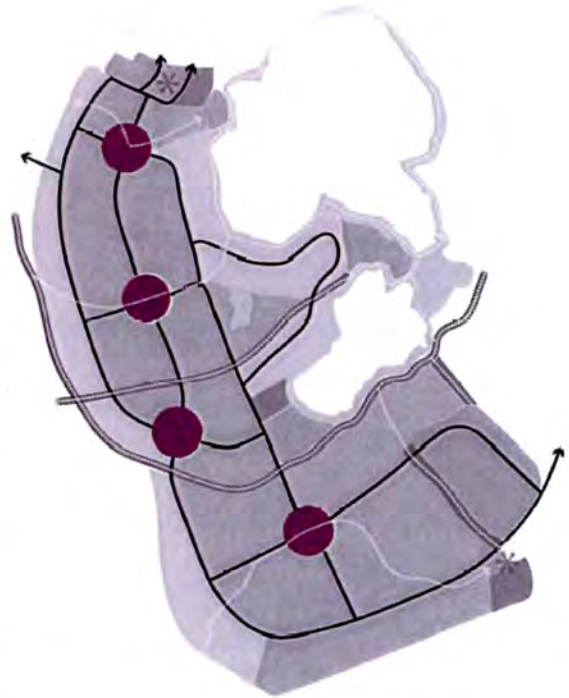
Imagery - Mix of Uses

Grocery Store



6.4 PROVIDE ALTERNATIVE ROUTE & TRANSPORTATION CHOICES

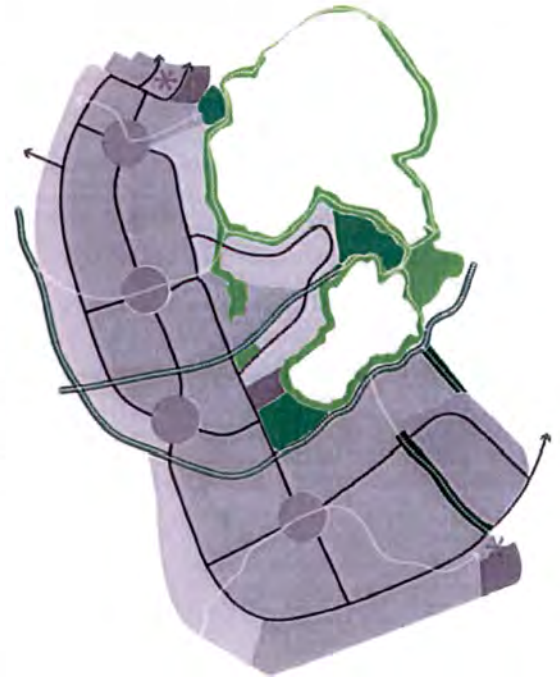
One of the key organizing principles of the plan is to encourage walking and alternative means of transportation. This is achieved in the plan through a number of ways. The first is the design of the road network. The road network is planned to have a number of main roads that connect the community from Topsail Road to McNamara Drive. By having a number of main roads the traffic is dispersed, the speed can be reduced and the roads become easier to cross and walk along as a pedestrian keeping the community feeling connected. One large road through the community would serve to ease traffic along Topsail Road but at the expense of the community. The west side of the community would be disconnected from the ponds on the east side, pedestrian road crossings would be limited, all through traffic would use this road making it very busy and the speeds would likely be posted higher to give the through movement priority.



Second, many trails and pathways and an interconnected residential road network will encourage walking in the community.

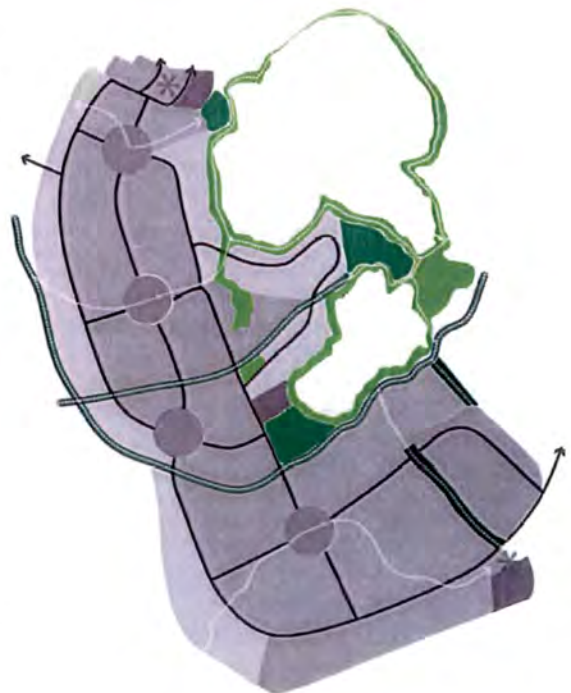
6.5 PROTECT ENVIRONMENTALLY SENSITIVE AREAS

All the existing Conservation areas (zoning) identified in the plan will be respected and enhanced. The areas around the ponds will maintain a 30 metre buffer and the trails within the community will link to the existing Octagon Pond Trail. Where possible, wet areas will be protected and brooks will have 15 metre buffers. Engineering design will strive to incorporate the wet areas as amenities within the community. Nearly all of the sensitive areas are near the large water bodies. Additional efforts to help retain tree cover in these areas include three large parks strategically located along Octagon and Rocky Ponds and allowing large lots to develop in this area where tree cover is more likely to be retained.



6.6 PROVIDE A VARIETY OF OPEN SPACES

The plan incorporates a variety of open spaces in addition to the protected areas identified above. The large parks along Octagon and Rocky Ponds will have some recreation function but be in a largely natural state. The one-acre parks located at each of the neighbourhood nodes will offset the higher density development and create distinct, recognizable neighbourhood centres. A large park is also intended to mark Topsail Hill, the highest point in the plan area. Views from Topsail Hill and the neighbourhood node parks should be oriented towards the ponds. Small parks and playgrounds will be dispersed through the plan area.



In terms of connectivity, the plan shows a number of trails and pathways that connect the open space amenities in the area and all have linkages to the ponds. In an attempt to make the transmission line a useable walkable corridor, the plan allows for an additional 15 metres of land on either side of the transmission line right-of way (15 metres) making the total width of the area approximately 45 metres. This additional land on either side of the transmission line creates a more natural setting by maintaining a significant amount of trees on both sides and creating a pleasant area for lots to back onto rather than a bare utility corridor.

The T'Railway is an important east-west route through the community. The T'Railway corridor currently ranges between 50-70 metres and will be realigned at the easterly most portion to bring it closer to Rocky Pond, allow for a much larger area of open space along the south side of Rocky Pond, and use the land more efficiently. At the time of municipal plan amendment, the realignment of the T'Railway will be referred to the Provincial Department of Environment and Conservation for approval. The trail system will connect to the area east of Octagon Pond to the Town's major recreation hub. The former spur line connection to Three Island Pond will be maintained but re-designed to integrate with the community. The pathway connection will run alongside the creek to create a more natural connection.

must go through Parks Division to request this.

Smaller parks and playgrounds throughout the area will serve the needs for residents of all ages and can be programmed accordingly.

Imagery - Open Space

Tot Lot Park

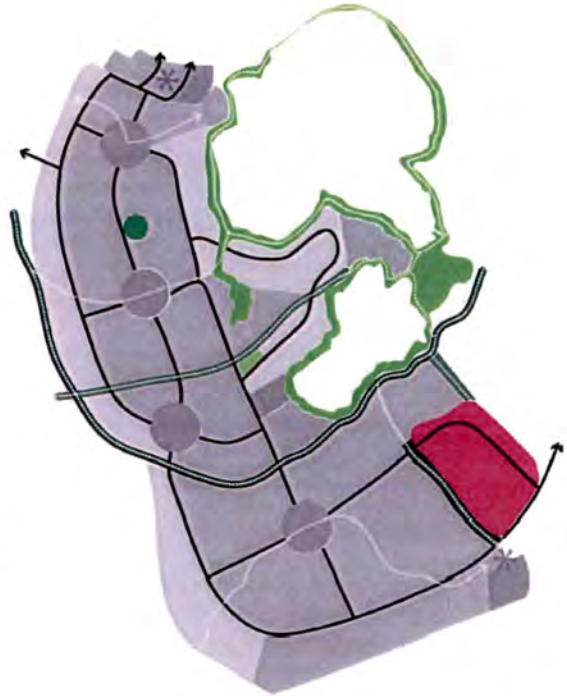


Octagon Pond Trail



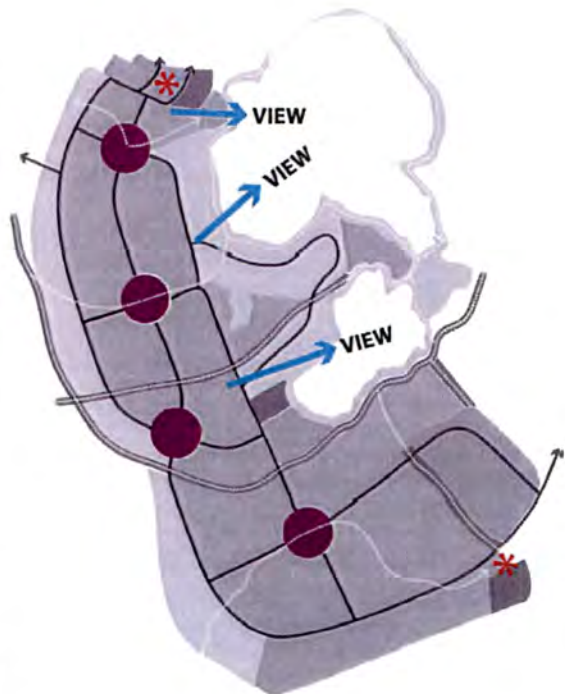
6.7 INTEGRATE NATURAL FEATURES WITH THE COMMUNITY DESIGN

It is important that the plan be integrated with the natural features that exist on the site. This includes developing the land with the topography to avoid significant grading. The plan attempts to protect as much as possible treed areas around the ponds through buffers, pathways, parks and large lots. A park is planned to mark the high point of the site and the commercial/light industrial area near McNamara Drive was reconfigured to align the buffer area with the brook.



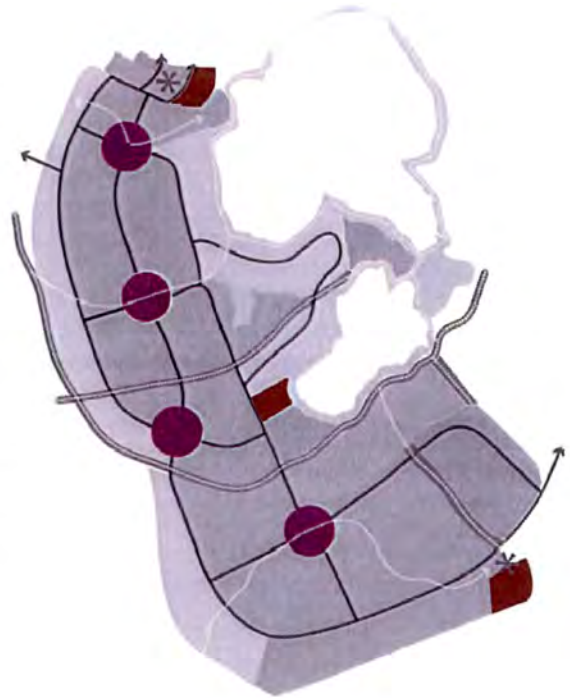
6.8 ENCOURAGE AN ATTRACTIVE COMMUNITY THROUGH QUALITY DESIGN

An attractive community is a more desirable community to choose to live in. It will be important for this plan to take advantage of the amenities it already has and to develop the new amenities to enhance the area. The neighbourhood nodes are a unique feature to this community and with thoughtful design can be a true hallmark of this community. The variety of housing styles will give the community an attractive, varied flavour and should be design with high quality in mind. As many of the parks take advantage of the views to the ponds, development should attempt to maximize these views and opportunities. Quality entry feature signs marking the entrance into the community will provide the visitor with its first impressions.



6.9 FLEXIBILITY OVER TIME

With a plan that could take upwards of 40 years to develop, it is very important that the plan can adapt to change. The neighbourhood node design and the higher density sites near the ponds are flexible and can allow for a variety of housing forms depending on market demand and Council policies at the time of development. The sites can accommodate larger buildings up to four stories or be lotted for single family homes. The plan has distributed the higher density sites throughout the community rather than clustering them in one area to allow for that housing type to occur within all phases of the development.

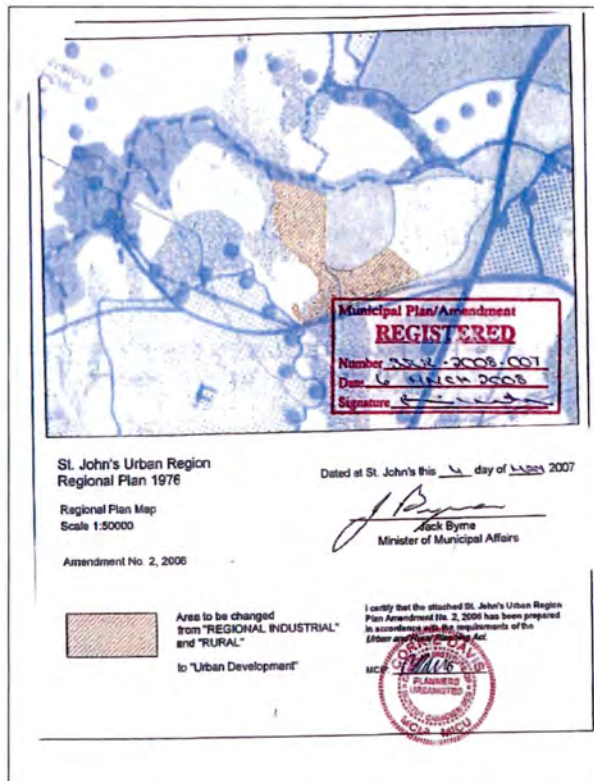


chapter 7

7.0 POLICY CONFORMITY

7.1 ST. JOHN'S URBAN REGION REGIONAL PLAN (1976)

The St. John's Urban Region Regional Plan (1976) was amended in May 2007 to allow for Urban Development around the west side of Octagon and Rocky Ponds. The Octagon Pond Area Concept Plan conforms to the St. John's Urban Region Regional Plan.



7.2 TOWN OF PARADISE MUNICIPAL PLAN (2004-2014)

The Town of Paradise Municipal Plan has been amended to accommodate primarily residential development with some area for commercial/light industrial development and an open space buffer. The plan was amended in 2007.

The Municipal Plan establishes guidelines for future development of the municipality. The plan has long range goals and objectives of Council. The Octagon Pond Area Concept Plan supports these goals.

Community Structure & Character

Goal: To promote orderly development, the economical use of municipal services, compatibility between adjacent land uses, reservation of open space, and environmental conservation.

The plan allows for new development in the Octagon and Rocky Pond area which is the next area for significant future long term development for the Town of Paradise. The plan demonstrates how the area could develop in an orderly pattern over time. The area takes advantage of municipal services in Topsail Road to allow the development to be fully serviced. Public open space is an important component of this plan to enhance the character of the Town and the future community. The plan demonstrates how new development is sensitive to the surrounding land uses through the location of large lots, buffers and open space. Environmentally significant areas are protected in this plan.

Commercial and Industrial Development

Goal: To develop an appropriate mix of retail, office, and service facilities to serve residents.

The plan makes allowances for local commercial opportunities throughout the community that are within walking distances of all the residents. The plan also contains a large commercial/light industrial area for mostly retail and office commercial uses that are compatible to the adjacent residential areas and to serve the community and the Town.

Housing

Goal: To provide land for an adequate quantity and mix of housing to serve the needs of the population.

The plan will have a high standard of housing and includes a mix of housing types and price points to serve the community and allow residents to ‘age in place’.

Transportation

Goal: To provide a safe and efficient internal and external transportation network to serve Paradise.

The road network in the plan has given significant consideration to the pedestrian by dispersing traffic onto many roads, ensuring connectivity via the roads and trails, and ensuring the design speeds of the roads allow for walking. The roads through the development will be community focused roads first and commuter routes second thus maintaining housing frontage along all roads and linking all areas of the plan. One major through road would detract from the aesthetic character and negatively impact the walkability of the community.

Environment

Goal: To provide for the health, safety, welfare and enjoyment of the general public and to preserve important aspects of the natural environment.

The plan contains numerous parks and open space recreational opportunities to promote healthy neighbourhoods. Significant wetlands, conservations areas, brooks and pond edges have been protected from development.

The Municipal Plan requires the following issues to be addressed in an Area Concept Plan:

- Conformity to the goals, objectives and policies of the Municipal Plan;
- A description of the subject lands;
- Proposed use of all land in the area concerned, taking into account Council’s aim to promote orderly development and the economical use of municipal services;
- Access to the site and internal road layout, taking into account the existing road network in the vicinity;
- Municipal servicing system including water supply, sanitary sewer, storm drainage, and linkage to existing systems.
- Consideration of land ownership as it will affect the design and development of streets and subdivisions;
- Description of impacts on adjacent land uses;
- Assessment of possible impacts on the natural environment of the area;
- Phasing scheme;

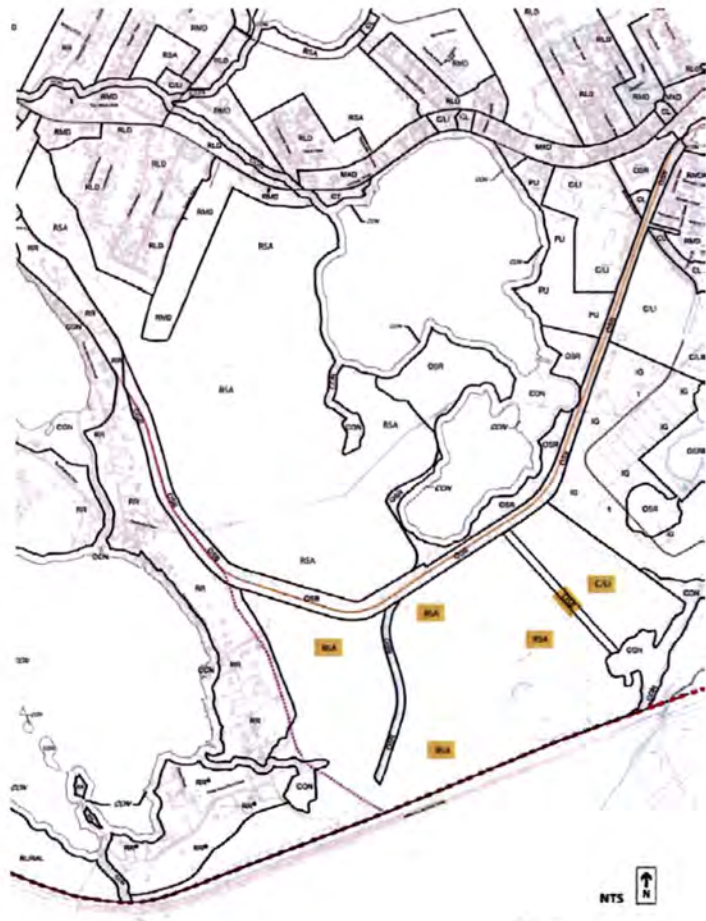
All issues have been addressed within this document.

7.3 THE TOWN OF PARADISE ZONING REGULATIONS

Town of Paradise Zoning Regulations have been amended to correspond with the changes made to the Municipal Plan. The subject site is zoned Residential Subdivision Area (RSA), Commercial/Light Industrial (C/LI) and Open Space Buffer (OSB). The area zoned RSA will require further rezoning to allow development to occur. The RSA zone is a holding zone for future residential and indicates that the land is intended for residential subdivision but does not breakdown the type of residential uses. The zoning amendments to change RSA will be submitted following the approval of the concept plan and once further engineering design work and subdivision layout has been determined. The subsequent zoning amendment will be for the first area of development off of Topsail Road (number of lots TBD).

Figure 7.3: Zoning Map

- RLD Residential Low Density
- RMD Residential Medium Density
- RHD Residential High Density
- RR Rural Residential
- RSA** Residential Subdivision Area
- RURAL Rural
- MXD Mixed Development
- CHW Commercial Highway
- CL Commercial Local
- C/LI** Commercial/Light Industrial
- IG Industrial General
- PU Public Use
- OSR Open Space Recreation
- OSB** Open Space Buffer
- CON Conservation
- Development Divide Line
- 190 Contour Line
- ⊥ T'Railway
- Municipal/Planning Area Boundary



chapter 8

8.0 PUBLIC CONSULTATIONS

8.1 PAST PUBLIC INPUT

Issues have been raised by the public in the past regarding development on these lands. Two Commissioner’s Hearings have been held (June 1999 & July 2007) when Regional and Municipal Plan Amendments have occurred. It should be noted that the current proposed comprehensive plan was not proposed in the 1999 and 2007 hearings.

The 1999 Commissioner’s Report indicated that approximately 100 people attended the Hearing. The key comments include:

- increased traffic if there is a connection to Shalloway Place
- impacts on wildlife
- impacts on rural area if a connection to Shalloway
- impacts on wells and run-off
- development should be done properly
- preference for larger lots

The report recommended that a traffic analysis and an environmental review be completed, no access to Shalloway Place, and access through the industrial park should be considered.

The 2007 Commissioner’s Report called for the creation of an Area Concept Plan that addressed such things as land uses, road layout, open space areas, servicing, phasing, impacts on surrounding lands, traffic, and environmentally sensitive

areas and also called for public consultation. The report indicated that approximately 70 people attended the Hearing.

The key comments include:

- the lands should remain undeveloped
- Town is lacking services and school capacity
- concerns over impacts to wells and surface run off
- Town should focus on commercial areas to increase tax base
- need a plan in place
- traffic impacts, access and delays on Topsail Road
- develop large lots
- impacts on wildlife

8.2 CURRENT PUBLIC ENGAGEMENT

On Thursday, October 2, 2008, Fairview Investments hosted an open house to present the comprehensive plan to the public and allow area residents the opportunity to comment on the plan. The open house was held in response to a request by Council and to the 2007 Commissioner's Report requesting an area concept plan including public engagement. The open house was advertised in The Evening Telegram and The Shoreline Newspaper. It was a drop-in format with display boards explaining the plan held from 7:00pm-9:00pm at the former Paradise Community Hall. A formal presentation was made, questions were addressed after the presentation and comment forms were provided. Approximately 35 people attended the open house (excluding Town councillors, staff and the project team) and 16 comment forms were filled out and 2 emails the following day.

The following is a summary of all the comments received to date. The verbatim comments can be found in Appendix B. How the plan addresses these comments also follows.

A. Feedback

The incorporation of green space into the plan was well received including a positive response to the areas with larger lots, the trail systems, the buffers areas around the ponds and the wetlands, and the park spaces.

*"...I'm glad that the ponds will remain green all around with many natural trails...
"...trailways, buffers, larger lots, parks, etc., are good plans..."*

How the Plan addresses it:

Green space is an important principle of the plan. In addition to the conservation zones around Octagon and Rocky Ponds and the wetlands and the T’Railway lands, the plan covers approximately 650 acres of land and contains 65 acres of open space. The open space is in many forms including 3 large parks near Octagon and Rocky Ponds with much of the area left in a natural state, pathways and some active play areas. More formal parks are to be located within the neighbourhood nodes. Trails are an important component of this plan and connect all of the amenities in the community including the ponds. The T’Railway is an existing feature through the plan and the right-of-way varies between 50 -70 meters wide, leaving significant area of trees on either side of the trail. The transmission line is an existing feature and will be utilized as a significant east-west route through the community. An additional 15 meters of land will be allocated on either side of the transmission line to ensure it is a protected and natural trail system.

B. Feedback

*Positive comments were received pertaining to doing comprehensive planning, that **planning is important**, development is inevitable in a growing Town like Paradise and that the consultants have attempted to address people’s concerns.*

“...Thank-you for the plan...”

“...Consultants have actually listened...”

“...very important...”

How the Plan addresses it:

Planning is an important first step before development begins to ensure coordination and opportunities seized. The 2007 Commissioner’s Hearing called for an Area Concept Plan and now it has been provided. The plan seemed to be appreciated by many of the comments.

C. Feedback

*One of the strongest concerns throughout the comments is that Council needs to follow through on the plan. **Skepticism regarding the plan actually being followed** was evident throughout the comments.*

“...No guarantee that what is proposed will be developed...”

“...Support for the plan in principle as long as it doesn’t erode...”

“...too many nasty examples of growth without planning...”

How the Plan addresses it:

The responsibility for follow through on the plan lies with both the Town and the developer. Although the plan has a long build out timeline, policies and planning objectives may change over time and may require deviation from the original plan. Changes are an acceptable inevitability as long as the changes make for a better plan over time.

The majority of the following comments received were similar to that of the previous Commissioner’s Hearing and many comments were addressed during the open house.

D. Feedback

*Leaving land in its natural state through **additional buffers** especially around wet areas and **maintaining rural style lots** were common comments.*

“...reduce the number of homes and keep development further away from the T’railway...”

“...large buffer near rail line and around transmission line; make lots larger...”

“...keep wetlands...”

How the Plan addresses it:

Wetlands and brooks will be protected (where possible) in the plan with buffers. The plan allocates 10% of the land as open space in addition to the conservation zones. When developed, this community will have more open space and natural areas than any other recently developed areas of Paradise. Large lots are planned around the ponds and along the areas of the plan adjacent to the rural areas. Depending on servicing options beyond the crest of the hill and sanitary servicing currently being reviewed by the Province, the number of large lots in the plan may increase.

E. Feedback

*Many people are concerned about possible **impact on their existing wells** and the **water quality of the surrounding ponds** with increased development.*

“...impacts on my well...”

“...impacts of runoff, fertilizers, pesticides, sewage into Topsail/Three Island ponds...”

“...ensure streams running into Three Island Pond are not disturbed...”

How the Plan addresses it:

The development within the community will be serviced to the standards and regulations of the Town. A well survey will be conducted where required.

F. Feedback

*The concerns regarding traffic mainly were regarding the **capacity of Topsail Road**. People were satisfied with only pedestrian access to Shalloway Place with no vehicular connection.*

“...Topsail Rd too busy and going to get worse...”

“...problems with Topsail Road need to be addressed now...”

How the Plan addresses it:

All new development within the Town of Paradise will have traffic impacts on Topsail Road. The Town has a long term plan to widen Topsail Road to help alleviate the traffic congestion and funding has been committed to widen Topsail Road to McNamara Drive. This development area, unlike other areas in Paradise, has the benefit of having a secondary access point out of the community at McNamara Drive rather than all of the traffic funneling onto Topsail Road. The traffic impact study completed for this plan indicates that the development of the first 400-500 lots will not have any undue impact on Topsail Road with the widening project in place.

G. Feedback

*Many other comments received were directed to **broader issues of development in Paradise** and for the Town’s consideration.*

“...build amenities before the housing such as schools & recreation fields...”

“...no cash-in-lieu for green space...”

“...Council should begin recycling program...”

“...don’t need more small same-looking houses in Paradise...”

“...fastest growing community not a good thing...”

How the Plan addresses it:

Many of these comments go beyond this plan. Amenities and green space are important to the general public as well as the developer of a new community to attract buyers. Constructing amenities prior to development is rarely done because the need is not there until the development has occurred and the money is typically not available before development is in place. However, planning for the expected population change and the amenities that will be required should go hand in hand. This long range plan has the flexibility to adapt to future demands and needs if determined they are needed.

It is important to note that the Town of Paradise has taken an important step in managing how the Town grows by requesting a long term plan of the developer. Change in a community is never easy but planning for the future allows people to be informed and involved early in the process before development begins.

chapter 9

9.0 SUPPORTING DOCUMENTATION

9.1 TRAFFIC IMPACT STUDY OVERVIEW

A Traffic Impact Study was completed for the proposed plan in October 2008. The full report can be found in Appendix 1 of this report. The traffic study used a very high unit count of over 3,200 single family dwellings. This estimate was done early while the plan was being refined. The maximum unit count is considered to be 2,800 units for the plan which includes multi-dwelling units and is still a high estimate. The total commercial square footage for the development was assumed to be 230,000 sq.ft.

The study indicates that there are currently capacity problems along Topsail Road especially at the interchange of Topsail Road and the Trans Canada Highway during the peak periods. The study assumes a 2% annual growth rate for the Town in addition to the proposed development within the plan area (targeted to be approximately 50 dwellings/year). The plan also assumes the completion of Topsail Road widening west to McNamara Drive (which is approved and funds committed by the Town of Paradise). Public transit was not assumed to play a role in the long term transportation solutions for Paradise.

The traffic study breaks the plan areas down into six development phases with roughly 500 lots per phase. The results of the study indicate that Phase 1 (roughly 500 lots) could be accommodated on the existing network without any major improvements to the network (this assumes widening to McNamara is

complete). Beyond a 500 lot count for this development in addition to other development occurring within Paradise, some intersections will be at or near capacity and improvements may be necessary.

The traffic study provides one alternative that could assist the Town of Paradise in alleviating some of the long term traffic impacts on Topsail Road. A bypass route is suggested that connects McNamara Drive more directly to the TCH/Kenmount Road interchange and avoids the lengthy loop on McNamara Drive. This route could divert approximately 50% of the traffic originating west of Trails End.

In short, the traffic impact study reveals that between 400-500 dwelling units within this plan area will not cause undue congestion along Topsail Road once the widening to McNamara Drive is in place. The study suggests monitoring traffic impacts should be done for Topsail Road within 5 year increments and that the feasibility of the bypass road should be explored to assist with relieving long term traffic congestion on Topsail Road caused by the overall growth of Paradise.

9.2 EASTERN SCHOOL DISTRICT OF NL STUDY

The question of school capacity and additional schools arose frequently throughout the public engagement process. This issue is beyond the control of the developer and rests with the Eastern School District of Newfoundland and Labrador (ESDNL). The ESDNL has begun a review of schools for the Town of Paradise.

The population of Paradise has been served for quite some time by the existing elementary school and in 2006 significant mould issues developed and forced the closure of the school. In 2007, the Province of Newfoundland and Labrador chose to replace the existing facility and the ESDNL hired Tract Consulting Inc. to undertake a Site Selection Study for two new K-6 elementary schools in the Town: one with a school population of 525 and another with a school population of approximately 700.

The consultants were also asked to identify the total number of students projected for each catchment area, based on existing age cohorts (under 15 yrs), and projected numbers of students, as per proposed future residential development areas in the Town of Paradise.

Based on the results of the detailed assessment two new schools have been proposed for construction and are advancing:

- A. The new K-6 (700 student) school be located Karwood Drive.
- B. The new K-6 (525 student) elementary school should be located at Elizabeth Park near Kenmount Road.

This study took into account future development up to a 15 year period. The proposed schools should satisfy immediate capacity concerns for area residents. Long term school planning should be undertaken by the ESDNL to address demands beyond the 15 year period. At this time the ESDNL has not indicated a need for a junior or senior high school in Paradise.

chapter 10

10. CONCLUSION

The Octagon Pond Area Concept Plan is a long term plan that describes how future development could occur in the Octagon and Rocky Pond area and the impacts and opportunities this future development could have on the town. Based on good planning principles of Smart Growth, this plan is an important step in realizing a walkable, amenity-rich community balanced with present day market realities and future flexibility. The concept plan offers a guide to future development in the area and will aid in the evaluation of any deviations from the plan in the future that Council may consider.

It is anticipated that the first phase of development in this area could begin in the Spring of 2009. Prior to that time, zoning amendments, detailed engineering design, subdivision surveys and other appropriate approvals will need to be completed. This work can begin in earnest once the concept plan has been approved. Fairview Investments have taken on the challenge put forward by Council to develop a long term comprehensive plan for the area.

Fairview Investments respectfully requests the approval of the Octagon Pond Area Concept Plan.

APPENDICIES

APPENDIX A
Traffic Impact Study

**TRAFFIC IMPACTS
OF THE
PROPOSED OCTAGON POND/
ROCKY POND DEVELOPMENT**

FAIRVIEW INVESTMENTS LTD.

The TRAFFIC & TRANSPORT Group

1.0 INTRODUCTION

The paragraphs below present the findings of a study that was conducted to assess the traffic impacts of a proposed urban development located south west of the Octagon Pond in the Town of Paradise. Subsequent sections describe the type, timing, and scope of the proposed development, the existing traffic elements likely to be impacted, the extent of the traffic generated by the proposed development, the resulting impacts and suggestions for mitigation of negative impacts.

1.0 THE PROPOSED DEVELOPMENT

The map in Figure 1 shows the location of the development within the Town of Paradise. The developer, Fairview Investments, has indicated that the project will include a mixture of single family dwelling units, apartments and condominiums. In addition, a small area will be set aside for highway commercial development and a significant area reserved for commercial-industrial uses. This is a large development and is not likely to be completed for a number of years. The eventual makeup will be determined by market conditions. Table 1 shows the maximum number of units that could be supported. No consideration has been given for public open space and therefore the numbers shown tend to overstate the practical capacity of the development. For the purposes of this study the number of dwelling units indicated in Table 1 has been decreased by 10% to reflect open space requirements. Similarly, to calculate the gross floor area of potential commercial buildings, the land area as identified in the same table to be used for commercial purposes has been reduced by 30% to reflect space required to accommodate parking.

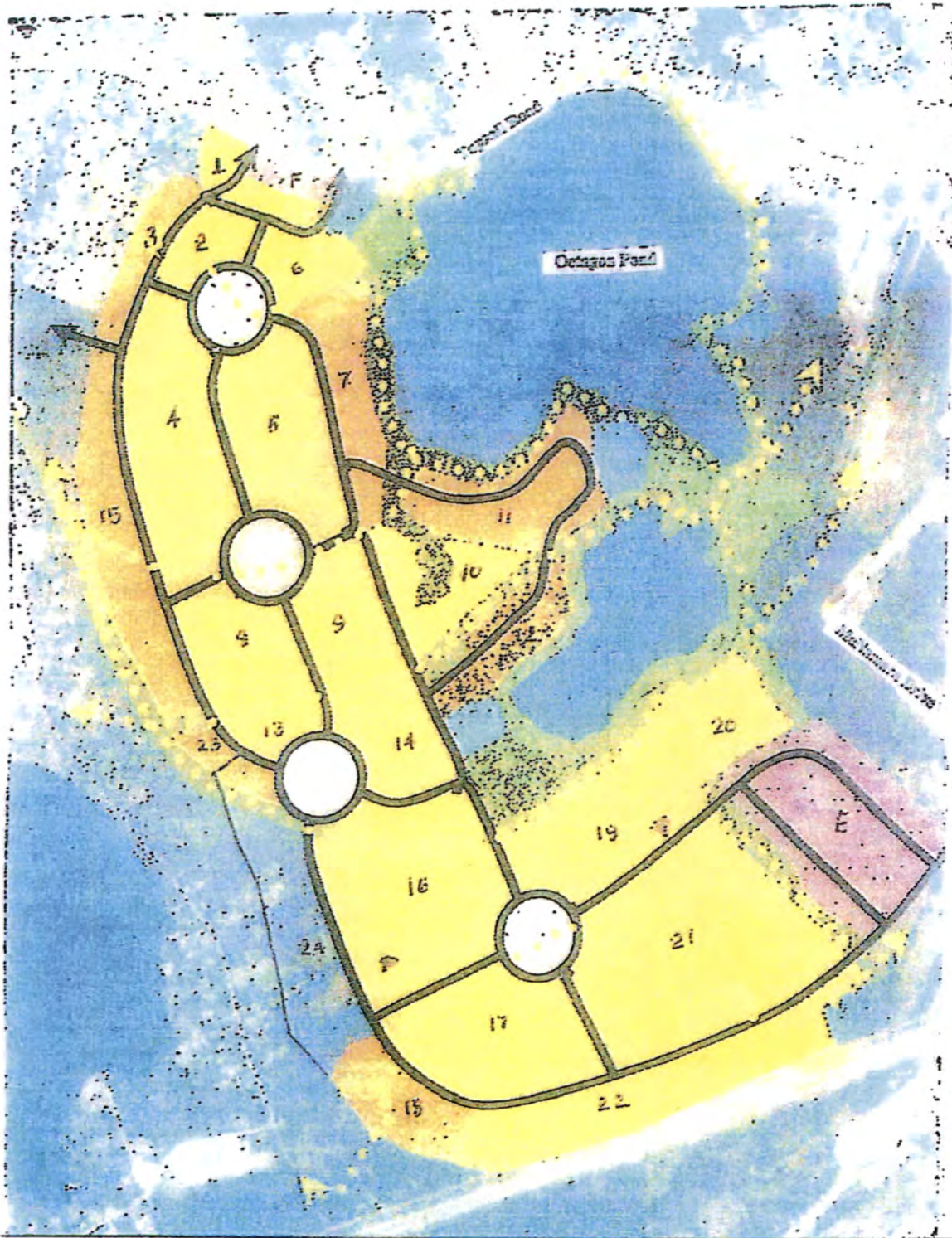


Figure 1 Location of Proposed Development

ZONE	MAXIMUM NUMBER OF UNITS	ZONING CATEGORY
1	45	RMD
2	45	RMD
3	45	RLD
4	200	RMD
5	200	RMD
6	65	RMD
7	35	RLD
8	110	RMD
9	110	RMD
10	60	RMD
11	60	RLD
12	80	RLD
13	35	RMD
14	90	RMD
15	200	RMD
16	330	RMD
17	180	RMD
18	15	RLD
19	220	RMD
20	60	RMD
21	380	RMD
22	230	RMD
23	20	RLD
24	170	RMD
A	65 Units	RHD
B	85 Units	RHD
C	65 Units	RHD
D	85 Units	RHD
E	325,000 sq. ft.	C/LI
I	25,000 sq. ft.	CHW

RLD - Residential Low Density
RHD - Residential High Density
CHW - Commercial Highway

RMD - Residential Medium Density
C/LI - Commercial/Light Industrial

Table 1 Maximum Number of Residential Units and Commercial Space in each Zone

2.0 TRAFFIC NETWORK LIKELY TO BE AFFECTED BY DEVELOPMENT

The Town of Paradise is largely a bedroom community to the city of St. John's. With most of the employment opportunity being in St. John's, an overwhelming proportion of traffic generated by the development will travel to the east in the am traffic period and return to the development in the pm traffic period. Only a minor portion of the traffic will travel between the development and the City of Mount Pearl and similarly only a very minor portion of traffic will travel between the development and the Town of Conception Bay South.

The development of the Town has largely been on an east-west basis with Topsail Road being the main thoroughfare through the Town connecting to both St. John's and the City of Mount Pearl. The most important traffic impacts resulting from the proposed development are therefore assumed to be those affecting Topsail Road and intersections of streets with Topsail Road. For these reasons the intersections listed in Table 2 have been identified as of significance in assessing the traffic impacts of the proposed development.

INTERSECTION	SIGNALIZED/UNSIGNALIZED
Topsail/St. Thomas Line	Unsignalized
Topsail/McNamara-Clearview	Signalized
Topsail/Paradise	Signalized
Topsail/Sun Valley	Unsignalized
Topsail/Trails End-Karwood	Signalized
Topsail/TCH West Ramps	Signalized
Topsail/TCH East Ramps	Signalized
Topsail/ Elizabeth	Unsignalized
Topsail/Carlisle-St. Annes	Signalized

Table 2 Intersections Studied for Traffic Impacts

3.0 MANUAL TRAFFIC COUNTS

When conducting traffic impact studies it is common practice to determine impacts during a period of time when there is most significant traffic already on the network. From counts of vehicular traffic conducted at each of the above intersections during the hours of 7:00 am and 9:00 am (am peak period) as well as between the hours of 4:00 pm and 6:00 pm (pm peak period) on typical weekdays it was determined that the pm peak period accommodated slightly more vehicular traffic than did the am period. The manual traffic counts were completed during the month of April when school and post secondary education related activities are at their peak. The single hour within the peak period with the largest volume of traffic is referred to as the peak traffic hour. In the case of this study it was determined that the late afternoon hour was the period of heaviest traffic flow. The results of the traffic counts are provided in the attached appendix.

4.0 MEASURES OF INTERSECTION EFFICIENCY - LEVEL OF SERVICE

A commonly used indicator of the traffic efficiency of an intersection relating to traffic flows to be accommodated and intersection capacity is that of the Level of Service, as defined in the Highway Capacity Manual (HCM). An indicator of the level of service is the average vehicle stopped delay, given in seconds. There are six Levels of Service ranging from "A" to "F". These are identified in Table 3.

Level of Service Criteria for Unsignalized Intersection (HCM)

LOS	Average Control Delay (seconds/vehicle)
A	0-10
B	>10-15
C	>15-25
D	>25-35
E	>35-50
F	>50

Level of Service Criteria for Signalized Intersections (HCM)

LOS	Control Delay per Vehicle (seconds)
A	<10
B	<10-20
C	<20-35
D	<35-55
E	<55-80
F	>80

Table 3 Level of Service Criteria for Unsignalized and Signalized Intersections

In addition to overall intersection LOS, the LOS for individual traffic flows eg. Left turning flows can be determined. It is not uncommon for an intersection to have an overall LOS that is acceptable say a "C" LOS but a particular movement may be "F". When this situation presents itself, measures to improve the problematic flow can be investigated. The Highway Capacity Manual provides guidelines for calculating LOS at both signalized and unsignalized intersections.

As well as Levels of Service (LOS), another indicator of intersection efficiency is Intersection Capacity Utilization, (ICU) usually expressed as a percentage of capacity. Definitions for ICU are shown in Table 4.

ICU Levels of Service

LOS A, ICU < 55%	-No congestion -Intersection can accommodate up to 40% more traffic
LOS B, ICU > 55% - 64%	-Very little congestion - Can accommodate up to 30% more traffic
LOS C, ICU > 64% - 73%	-No major congestion -Can accommodate up to 20% more traffic
LOS D, ICU > 73% - 82%	-Normally no congestion -Most traffic can be served on first cycle -Can accommodate up to 10% more traffic
LOS E, ICU > 82% - 91%	-On verge of congested traffic -Less than 10% reserve capacity
LOS F, ICU > 91% - 100%	-Over capacity -Residual queues at end of green phases
LOS G, ICU > 100% - 109%	- 9% Over capacity - Long queues - Long delays to traffic
LOS H, ICU > 109%	- More than 9% over capacity -Long queues - Long delays

Table 4 Levels of Service and Intersection Capacity Utilization Descriptions

Most jurisdictions try to have intersections operating at “E” LOS or better. At “F” LOS there is considerable congestion, lost time and high accident rates and is thus undesirable or even unacceptable.

5.0 EXISTING INTERSECTION LOS (Baseline Conditions)

Using the data acquired as part of the baseline traffic counts, LOS was conducted for present conditions (2008). The results of that analysis is shown in Table 5.

INTERSECTION	LOS	ICU	REMARKS
Topsail/St.Thomas	A	47.3%	Volumes low all flows at acceptable LOS
Topsail/McNamara	A	41%	All flows at acceptable LOS
Topsail/Paradise	C	48.2%	Left Turns eastbound at "E" LOS
Topsail/Sun Valley	B	61.1%	Exiting traffic from Sun Valley at "F" LOS
Topsail/Trails End-Karwood	C	76.7%	Eastbound Left on Topsail at "E" LOS Westbound Left on Topsail at "E" LOS
Topsail/TCH west ramps	E	82.1%	Westbound Left on Topsail at "E" LOS
Topsail/TCH east ramps	D	82.1%	Eastbound Left on Topsail at "E" LOS Northbound Left on ramp at "F" LOS
Topsail/Elizabeth	C	67.6%	Southbound Left on Elizabeth at "F" LOS
Topsail/Carlilse-St.Annes	D	82.5%	All movements satisfactory

Table 5 LOS and ICU in 2008, for the pm Peak Traffic Hour

5.1 COMMENTARY ON EXISTING CONDITIONS

As can be observed from Table 5, with the exception of the ramps at the TCH all other intersections are operating at acceptable LOS and with some excess capacity in reserve. The LOS at the west ramps while at "C" currently during the pm peak hour, is at "F" during the am peak hour due to the directional nature of the traffic flows-towards St. John's in the am and towards the Town of Paradise during the pm peak hour. With ICU exceeding 100% there is very little improvement that might be obtained by changing the traffic signals. These are traffic actuated and coordinated with other signals both upstream and down stream. To improve the LOS requires some diversion of traffic to some other routes and/or the changes to infrastructure.

It is noted that the interchange at the junction of Topsail Road and the TCH is a split diamond with all movements on Topsail Road controlled by electronic traffic signals. The left turn lanes on Topsail Road are relatively short and do not have the capacity to service all the left turn

demand. Traffic queues waiting to compete the left turn manoeuvres spill into the through lanes thereby reducing the capacity of these lanes. The split diamond interchange is not appropriate for the volumes of traffic needing to be serviced.

Without any new traffic resulting from the proposed development at Octagon Pond the Topsail Road/TCH interchange is deficient. The addition of any new traffic will only serve to aggravate an already poor LOS.

6.0 SOME ASSUMPTIONS CONCERNING TRAFFIC FORECASTS

In developing traffic forecasts for the proposed development the following assumptions were used.

- 1. Topsail Road will be widened to at least four lanes as far west as McNamara Drive. Ideally this widening should be to five lanes in order to provide a left turn storage lane.**
- 2. The normal growth in traffic along Topsail Road excluding traffic from the proposed development will be 2% per annum.**
- 3. The zone as proposed on the diagram in Figure 1 as “highway commercial” will generate vehicular from pass-by traffic already on the network and as such is not new traffic generated by the development.**
- 4. As most school related traffic is carried by school buses and these generally do not travel during the pm peak hour, school related traffic does not play a role in site generated traffic.**
- 5. Since the scale of this development is large it will be a considerable number of years before all the building lots are developed. The developer has indicated that a reasonable number of units to be sold is somewhere between 50 and 75 per year. For the purposes of this analysis a phasing of six increments of approximately 500 dwelling units was used.**
- 6. The developer intends to develop building lots largely in accordance with market demand. The commercial-industrial zone will not be developed for at least ten years.**
- 7. The initial plans for the development have a network of streets going through it.**

It is not good engineering or good planning to have a major arterial road passing through a residential development. It is assumed that the major streets through the development will not be used as arterial streets that might serve as a by-pass to Topsail Road. It is also assumed that eventually, traffic calming measures will be put in place to discourage through traffic. This study has assumed that the only traffic entering and leaving the development will be that generated by the development.

8. While the cost of energy is of major concern at the present time and may in future years play a profound part in urban transportation mode utilization, for purposes of this study the status quo as far as mode choice is concerned will be maintained.

9. Public transport (buses) will not play a role in traffic to/from the development.

7.0 VEHICLE TRAFFIC GENERATION CAUSED BY PROPOSED DEVELOPMENT

Vehicle traffic generated by the proposed development was forecast using rates and guidelines set out in the Trip Generation Manual published by the Institute of Transportation Engineers. In as much as the majority of the proposed development will be devoted to residential uses, the average vehicle trip rate per dwelling unit was used as the prime determinate for the calculation of number of future vehicle trips to and from the development during the time period of interest - the pm peak traffic hour on a typical weekday. The Manual provides slightly different trip vehicle rates for single detached dwelling units, apartments and condominiums, with the later types generating fewer vehicle trips than the single detached units. Although the proponent for the development has identified the target number of each type of dwelling units to be accommodated, the majority of units are expected to be single detached. Given the fact that market conditions are likely to influence the number and timing of building lots developed and that it could conceivably be several years before the whole development is complete, it was decided that for the purposes of residential development all vehicle trips would be assumed to be generated by single detached units. Even though basement apartments may be permitted they were not considered as it is not possible to determine the number of this type of unit that may be built. These assumptions tend to overestimate to a minor degree the total traffic generated by this land use.

The development proposes to have a zone of 325,000 square feet devoted to commercial-industrial uses. Because of parking requirements' the gross floor area likely to be used for these purposes was calculated to be 230,000 square feet. The manual provides widely varying vehicle trip generation rates for different types of businesses within the broad land use stated above. These rates vary from less than .5 vehicle trips per 1000 square feet of gross floor area to 11 vehicle trips per 1000 square feet of gross floor area. Since the development of the commercial-residential zone appears to be several years into the future, and given that the precise type of business likely to build on these lands is not known, a mixture of businesses was investigated and an average vehicle trip generation rate of 4.45 vehicle trips per 1000 square feet of gross floor area was used as a basis to determine vehicle trip generation of the commercial-industrial zone for the pm peak traffic hour on a typical week day. Taking into consideration the above, vehicle trip generation forecasts were conducted. Table 6 presents the results of the vehicle trip generation.

RESULTS OF VEHICLE TRIP GENERATION
(During pm Peak Hour)

PHASE	TOTAL VEHICLE TRIPS	TRIPS ENTERING	TRIPS EXITING
1	541	346	195
2	525	336	189
3	538	323	215
4 (commercial)	1024	512	512
5	669	449	220
6	517	334	183
TOTALS	3814	2300	1514

Table 6 Vehicle Trip Generation from Proposed Development

8.0 VEHICLE TRIP DISTRIBUTION AND ASSIGNMENT

The generated traffic was distributed to traffic zones both internally and externally. For reasons discussed earlier the majority of traffic was distributed to external zones in St. John's and Mount Pearl. The distributed traffic was assigned to the traffic network that had Topsail Road as the major link. For the purposes of analysis it was assumed that there would not be a street connection between the development and McNamara Drive until Phase 3 is completed. With the assigned traffic for each phase a LOS analysis was conducted for each of the intersections that were identified earlier.

9.0 RESULTS OF LOS ANALYSIS AFTER PHASE 1 TRAFFIC ADDED TO NETWORK

The generated vehicle trips, both to and from the development, for phase 1 as well as traffic resulting from normal growth for five years (assuming that it will take five years to complete phase 1) but not related to the development were added to the network and a LOS analysis completed. The results of that analysis are given in Table 7.

INTERSECTION	LOS PHASE	ICU PHASE 1	REMARKS
Topsail/St. Thomas	B	60.8%	Left turns from St. Thomas at "F"
Topsail/McNamara	A	52.4%	All flows at satisfactory LOS
Topsail/Paradise	C	58.8%	All flows at satisfactory LOS
Topsail/Sun Valley	B	60.5%	Traffic exiting Sun Valley "E" LOS
Topsail/Trails End	E	93.3%	Westbound through and north bound left at "F" LOS
Topsail/TCH west ramps	C	82.1%	Left turn from Topsail "F" LOS
Topsail TCH east ramps	E	82.1%	Left turn from ramp "F" LOS
Topsail/Elizabeth	C	68.0%	Left turn from Elizabeth "F" LOS
Topsail/Carlisle	F	92.4%	Westbound left turn "F" LOS

Table 7 Intersection LOS after Phase 1 Traffic added to Network

9.1 COMMENTARY CONCERNING IMPACTS OF PHASE 1 TRAFFIC

The Topsail Road/ St. Thomas intersection, although at a forecast “B” LOS, has one movement, namely the left turns from St. Thomas onto Topsail at an “F” LOS. This intersection is at present unsignalized. Signalization would undoubtedly improve this problematic flow, however, if this is done it will likely attract more traffic from developments along St. Thomas Line. This in turn will add to problematic intersections downstream on Topsail Road.

10.0 RESULTS OF ANALYSIS OF LOS AFTER PHASE 2 TRAFFIC ADDED TO NETWORK

The vehicle trips generated during phase 2, as shown in Table 6, were distributed and assigned to the street network. It is estimated that at the end of this phase there will be an additional 336 vehicles entering the proposed development and 189 vehicles exiting the proposed development during the peak pm traffic hour on a typical weekday. It has been assumed that it will be ten years before phase 2 is completed and during that period of time there will be normal growth in traffic along Topsail Road not attributed to this development, of 2% per year. It was further assumed that since it has been stated that an arterial street through the residential development that might induce traffic as an alternative to Topsail Road, will not be provided as part of the proposed development, the main street between Topsail Road and McNamara Drive will not be completed prior to the completion of phase 2. The increased traffic including the site specific traffic, normal growth, plus a very minor amount expected as a result of the development of the small highway commercial zone was added to the traffic expected after phase 2 was completed and a LOS analysis conducted. The results of that analysis are given in Table 8.

INTERSECTION	LOS PHASE 2	ICU PHASE 2	REMARKS
Topsail/St. Thomas	B	60.8%	Left turns from St. Thomas, "F" LOS
Topsail/McNamara Drive	B	58.7%	All movements satisfactory
Topsail/Paradise	C	99.8%	All movements satisfactory
Topsail/Sun Valley	D	75.4%	Southbound left "F" LOS
Topsail/Trails End	F	113.1%	Westbound through and left northbound at "F" LOS
Topsail/TCH west ramps	C	73.1%	Westbound left, "F" LOS
Topsail/TCH east ramps	F	131.9%	Westbound through and northbound left at "F" LOS
Topsail/Elizabeth	D	73.6%	Southbound left, "F" LOS
Topsail/Carlisle	D	94.3%	All movements satisfactory

Table 8 Results of Intersection Analysis after Phase 2

10.1 COMMENTARY ON RESULTS OF PHASE 2 ANALYSIS

The addition of traffic generated by phase 2 to the network shows that two intersections namely Topsail/Trails End and Topsail TCH east ramps that were problematic with Phase 1 traffic are exacerbated further by the addition of phase 2 traffic. By the time phase 2 is completed both these intersections will be beyond capacity. Traffic queues will be long and traffic delays considerable.

11.0 RESULTS OF ANALYSIS AFTER PHASE 3 IS ADDED TO NETWORK

It is assumed that phase 3 will be completed by the end of the 15th year. During that time the street through the development connecting to McNamara Drive will not be constructed. Therefore access to development will be via the two proposed connections with Topsail Road. Table 9 presents the results of the analysis of adding phase 3 plus normal growth traffic to the network.

INTERSECTION	LOS PHASE 3	ICU PHASE 3	REMARKS
Topsail/St. Thomas	C	66.8%	Left turns from St. Thomas, "F" LOS
Topsail/McNamara Drive	B	74.9%	All movements satisfactory
Topsail/Paradise	D	110.7%	Eastbound through and left at "F" LOS
Topsail/Sun Valley	E	89.5%	Southbound from Sun Valley "F" LOS
Topsail/Trails End	F	132.7%	Westbound left and through as well as northbound left at "F" LOS
Topsail/TCH west ramps	F	137.8%	Westbound through and left as well as southbound left at "F" LOS
Topsail/TCH east ramps	F	128.4%	Eastbound left, westbound through and northbound left all at "F" LOS
Topsail/Elizabeth	D	81.2%	Eastbound left and through as well as southbound left all at "F" LOS
Topsail/Carlisle	F	102.6%	Westbound left and through as well as southbound left at "F" LOS

Table 9 Results of LOS Analysis after Phase 3 is completed

11.1 COMMENTARY ON RESULTS OF PHASE 3 ANALYSIS

It is clear that with the addition of phase 3 traffic most of Topsail Road is well beyond capacity. Of particular concern are the intersections at Topsail/Trails End, Topsail/TCH west

and east ramps as well as Topsail/Carlisle. The necessary increase in capacity and thus an improvement in LOS cannot be obtained through greater efficiencies of the electronic signal system. To accomplish this more capacity in terms of additional lanes or some new competing links must be provided.

12.0 RESULTS OF ANALYSIS AFTER PHASE 4 (Commercial) IS ADDED TO NETWORK

Phase 4 is largely the construction of the commercial-industrial zone. For the purposes of this analysis it is assumed that this will take place in the 15th year. This may not be a valid assumption and this zone could very well be occupied during the very early stages of the development. To fully take advantage of this zone requires the construction of the main street through the development from Topsail Road to McNamara Drive. In discussions with the developer the study team has concluded that the developer intends to start the development near Topsail Road and will gradually work towards McNamara Drive area as market conditions permit. The intent to discourage traffic that might be diverted from Topsail Road by having very controlled traffic along the main street through the development indicates that the completion of that street will be sometime into the future. The results of the addition of phase 4 traffic to the existing network are presented in Table 10.

Because of the scope of the proposed commercial zone it has been assumed that when completed it will attract 30% of the traffic from areas west of McNamara, 30% from Mount Pearl, 20% from Paradise - east of McNamara Drive and 20% from the proposed development. Since as pointed out above the street connection to McNamara Drive will be completed by the time Phase 4 is completed a significant amount of traffic coming from and returning to Mount Pearl will access the site via McNamara Drive.

INTERSECTION	LOS PHASE 4	ICU PHASE 4	REMARKS
Topsail/St. Thomas	D	75.0%	Left turns from St. Thomas, "F" LOS
Topsail/McNamara Drive	D	83.4%	Westbound left turn on Topsail, "F" LOS
Topsail/Paradise	D	94.8%	Eastbound left turn on Topsail, "F" LOS
Topsail/Sun Valley	F	96.5%	Left turn from Sun Valley, "F" LOS
Topsail/Trails End	F	138.1%	All east and west movements, "F" LOS
Topsail/TCH west ramps	F	147.5%	All westbound at "F" LOS
Topsail/TCH east ramps	F	151.0%	Eastbound left, westbound through, northbound left all at "F" LOS
Topsail/Elizabeth	E	84.7%	Eastbound left, all southbound, "F" LOS
Topsail/Carlisle	F	106.0%	Most movements at "F" LOS

Table 10 Results of LOS Analysis after Commercial-Industrial added to Network

12.1 COMMENTARY ON RESULTS OF PHASE 4 (Commercial) ANALYSIS

Those intersections that were problematic with the addition of phase 3 continue to be more so. All the intersections east of Sun Valley Drive area problematic and need serious attention.

13.0 RESULTS OF ANALYSIS AFTER PHASE 5 TRAFFIC ADDED TO NETWORK

The generated traffic for phase 5 was distributed and assigned to the network. By the time that this phase is completed it is expected that all streets in the proposed network will also be completed. It is forecast that a significant portion of site related traffic will use the connection to McNamara Drive to travel to and from the development. Table 11 shows the results of the analysis of the addition of phase 5 traffic to the network.

INTERSECTION	LOS PHASE 5	ICU PHASE 5	REMARKS
Topsail/St. Thomas	D	79.0%	Left turns from St. Thomas, "F" LOS
Topsail/McNamara Drive	D	86.1%	Westbound left turn at "F" LOS
Topsail/Paradise	D	94.5%	Eastbound left turn at "F" LOS
Topsail/Sun Valley	F	99.1%	Southbound from Sun Valley at "F" LOS
Topsail/Trails End	F	140.6%	All movements except on Topsail plus northbound left at "F" LOS
Topsail/TCH west ramps	F	147.8%	All movements except eastbound at "F" LOS
Topsail/TCH east ramps	F	152.0%	Eastbound left, westbound through, northbound left all at "F" LOS
Topsail/Elizabeth	E	85.2%	Eastbound left, all southbound, "F" LOS
Topsail/Carlisle	F	106.0%	All westbound, eastbound left, and southbound left at "F" LOS

Table 11 Results of LOS Analysis after Phase 5 added to Network

14.0 ANALYSIS AFTER PHASE 6 IS DEVELOPED

The traffic generated by phase 6 was distributed and assigned to the network. The results of that analysis are given in Table 12.

INTERSECTION	LOS PHASE 6	ICU PHASE 6	REMARKS
Topsail/St. Thomas	D	81.2%	Left turns from St. Thomas "F" LOS
Topsail/McNamara	D	87.5%	Westbound left, "F" LOS
Topsail/Paradise	E	95.9%	Eastbound left and westbound through, "F" LOS
Topsail/Sun Valley	F	100.5%	Left turns from Sun Valley "F"
Topsail/Trails End	F	142.0%	Four of eight movements at "F" LOS
Topsail/TCH west ramps	F	152.3%	Three of five movements at "F" LOS
Topsail TCH east ramps	F	152.5%	Three of five movements at "F" LOS
Topsail/Elizabeth	E	85.5%	Southbound left and right at "F"
Topsail/Carlisle	F	107.5%	Four of eight movements at "F"

Table 12 Results of LOS Analysis after Phase 6 added to Network

15.0 DISCUSSION

This development is by most standards large and with mixed land uses is forecast to generate very significant amounts of traffic. The pace of development, due to market forces, may be somewhat slow or conceivably could be fast, although at the present time the former situation appears to hold. With the pace of development as assumed by this study it could be as much as thirty years before the project is complete. Forecasts of traffic flows that far into the future are at best educated guesses. Travel behaviour, the price of travel, mode of travel, household make up and other demographic conditions may be very different than those of today.

At the present time the Town of Paradise is developing very rapidly. This has given rise to the assumed 2% per annum increase in traffic on existing streets without any consideration for traffic that will be generated by the proposed development. The Town is largely a bedroom community and while there is a significant amount of commercial activity, the majority of both commercial and industrial activities are located in the City of St. John's. The major health care facilities, the post secondary education facilities, major retail shopping facilities, most Provincial and Federal government offices and in recent years the oil industry offices are all located in St. John's. Thus the predominate travel for households establishing in the proposed development will be towards St. John's in the morning and returning from St. John's in the afternoon on most typical weekdays. While weekend travel can be as intensive as weekday travel the same time constraints are usually not applied and travellers usually have more choice over travel. It is primarily for this reason that most urban traffic impact studies centre around conditions during the period of the typical weekday when traffic volumes are expected to be greatest. For this study that period is the afternoon peak traffic hour (pm peak hour). The main traffic route between Paradise and St. John's is Topsail Road. The accessibility of the major destinations in St. John's has been greatly enhanced in recent years due to the completion of the TCH (Outer Ring Road). This road provides a very convenient route for residents of Paradise through its connection with Topsail Road. The capacity of Topsail Road and its ability to handle traffic in an acceptable manner is determined by the traffic efficiency of intersections located along its length. This study analysed traffic conditions referred to as the Level of Service at nine current street intersections along Topsail Road. Of these, six were signalized using electronic signals while three were unsignalized.

The study determined that even before any development is completed at the proposed site, many of the existing intersections are at or near capacity with very little excess capacity to handle new traffic. Table 5 provides an overview of conditions in 2008. Of particular concern are the intersections at Topsail Road/Trails End-Karwood Drive as well as Topsail Road/TCH both east and west ramps. While there is some capacity available at these intersections it is very limited and cannot support the proposed development without considerable congestion being caused.

From the analysis as conducted, Phase 1 could be accommodated on the existing network without major improvements to the network. The addition of Phase 2 traffic is expected to bring some of the intersections close to capacity and while it may not be mandatory that street and intersection improvements be done before phase 2 is complete, serious consideration should be given to improvements. Of concern, although not related to this development, are the possibilities for similar type developments within the Town during the construction of Phase 1. If other developments occur, the traffic network, particularly Topsail Road, may not be able to handle the resulting traffic.

The addition of traffic from Phases 3, 4, 5 and 6 to the traffic network requires that improvements to the network designed to mitigate negative impacts be completed before these Phases are completed. The range of improvements available without considerable expense is limited. For instance the diamond interchanges at the TCH and Topsail Road as well as at the TCH and Kenmount Road while appropriate for low volumes of traffic are limited in their ability to handle large volumes of traffic. The replacement of these interchanges with more free flowing ones would be very costly and is doubtful if this will ever come about.

The Town has no control over developments that might take place in the Town of Conception Bay South. If development takes place some of the resulting traffic will flow along Topsail Road. St. Thomas Line might be an alternative to Topsail Road for this traffic but due to the fact that driving times along St. Thomas Line to/from St. John's is perceived to be longer than those along Topsail Road it is very doubtful that St. Thomas Line will evolve as an alternative to Topsail Road.

Although the analysis as conducted was primarily concerned with signalized intersections along Topsail Road it is noted that there are twenty one other unsignalized intersections. These connect minor streets to Topsail Road. Some of these intersections are located west of the proposed development and will be impacted in only a minor degree by it. Other intersections to the east while not handling a great amount of traffic will have situations whereby traffic from the minor street will find it almost impossible to access Topsail Road.

signals, however, to do this would further degrade the LOS along Topsail Road. The study also noted that there are a number of short dead end streets intersecting with Topsail Road (similar to Sun Valley Drive). While these streets carry only a minor amount of traffic they serve to interrupt the main flow along Topsail Road. These streets should be connected to the collector street to the north (Mallow) to enable traffic to flow to the more major streets such as Trails End or Paradise Road.

The development as proposed in Figure 1 has two new intersections with Topsail Road. In as much as through traffic from Topsail Road is not expected to use new streets in the development to access McNamara Drive, the only traffic using the proposed intersections will be that generated by the development itself. Since it is forecast that that traffic will be very significant, the proposed 2 intersections will need to be signalized, coordinated and traffic actuated. These signals will need to be installed during the development of phase 1.

16.0 MITIGATIVE MEASURES

Given that the intersections along Topsail Road are expected to be at an unacceptable LOS after Phase 1 is completed it is necessary to construct a bypass to Topsail Road. A new arterial street that essentially eliminates the long loop on McNamara Drive would give direct access to the interchange at the TCH/Kenmount Road junction as well as direct access to Mount Pearl near Donovans industrial park. A suggested route is shown on the map in Figure 2. For traffic moving between Paradise and St. John's this new route will offer slightly less travel time due to the effect of less congestion and a lesser number of intersections than the travel time when Topsail Road is used. When operational, this route should divert at least 50% of the traffic originating west of the Trails End intersection to the new route. It is estimated that 60% of traffic originating in the proposed development will be diverted to this route. While such traffic diversions will not fully eliminate the expected congestion at the Topsail Road/Trails End-Karwood intersection and the Topsail Road/TCH intersections, it will greatly reduce that congestion.

traffic diversions will not fully eliminate the expected congestion at the Topsail Road/Trails End-Karwood intersection and the Topsail Road/TCH intersections, it will greatly reduce that congestion.

Some attempts should be made by the Town to encourage the use of public transportation. This study has assumed that public transportation will not play a role in the proposed development. This assumption has been made largely on the basis of the fact that in this province that mode of transport is not widely accepted. The high cost of energy is however causing a large number of urban dwellers to re-evaluate their methods of travel. Technology has and will continue to offer urban dwellers some opportunity to work from their homes, thereby negating the need to travel by vehicle to places of work. Thus the need to provide additional capacity will be delayed or minimized.

17.0 CONCLUSIONS

The proposed development, while in the long term has the potential to cause considerable congestion on Topsail Road, the first phase with roughly 400 dwelling units is not likely to cause undue congestion.

It should be noted that while the proposed development in the long term is a large one, there is considerable potential for other developments within the Town. The magnitude of these and the impact of these on Topsail Road is outside the scope of this study. They will add to potential traffic problems along Topsail Road. It is very important to note that while the first phase of this development can be accommodated, if other developments are permitted there will be very serious traffic implications for Topsail Road.

Although the intersections along Topsail Road are not at the present time at traffic capacity, the right of way for the bypass road suggested in the previous section should be reserved now. Construction of this road should be completed prior to the development of Phase 2. This street

should have good geometric characteristics with design speeds that will serve to attract traffic from Topsail Road.

Because the final details, including the pace of development, are not known at the present time, it is most difficult to make recommendations, particularly concerning a development that may take in excess of thirty years to complete. While it has been assumed that the commercial-industrial zone will not be constructed for at least ten, if not fifteen years, this may not be the case particularly if a strong market for that type of land develops earlier. The traffic requirements as a result of this development should therefore be monitored and this study should be revisited and updated every five years.

The TRAFFIC & TRANSPORT Group

St. John's, Newfoundland

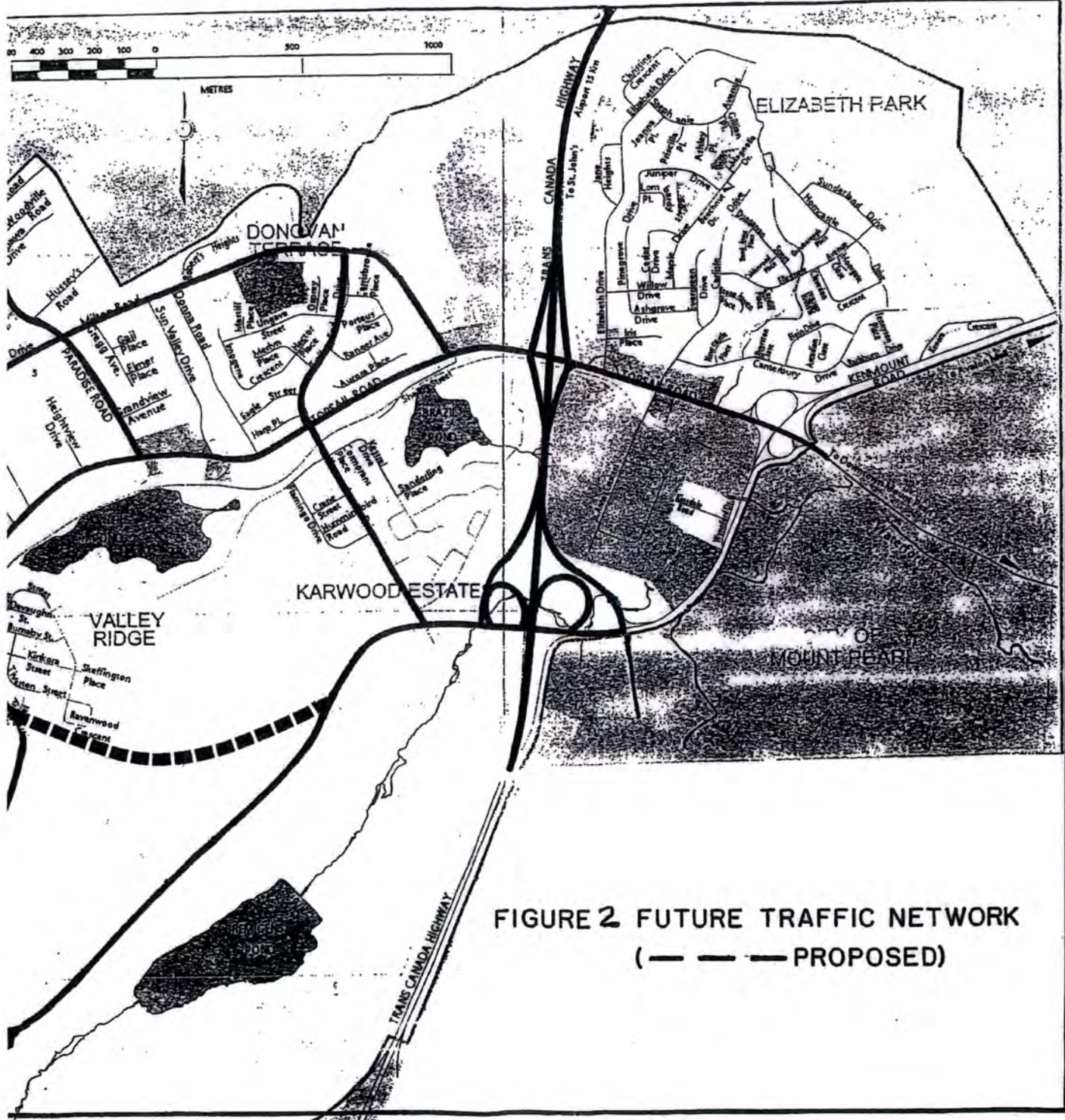


FIGURE 2 FUTURE TRAFFIC NETWORK
(— — — PROPOSED)

APPENDIX

INTERSECTION ST THOMAS LINE / TOPSAIL RD.

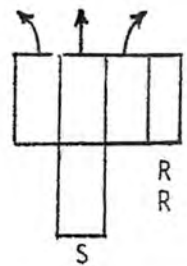
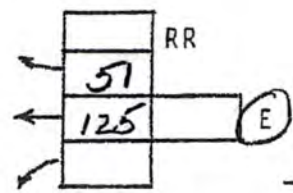
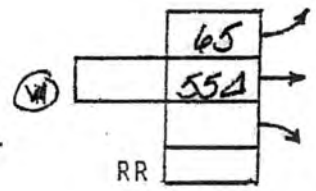
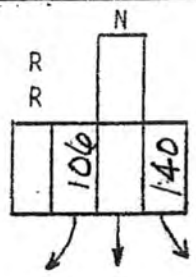
Date APRIL 16/08

Weather _____

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7³⁰ to 8³⁰

ST THOMAS



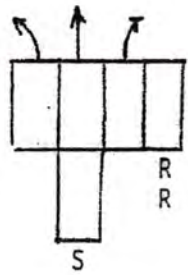
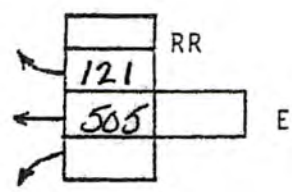
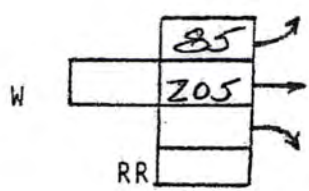
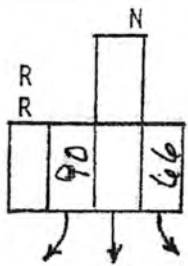
TOPSAIL

TOPSAIL

TOTAL 1041

P M Peak

5:00 to 6:00



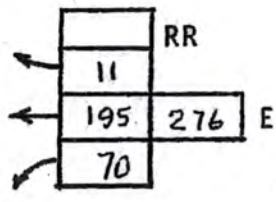
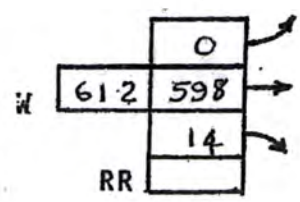
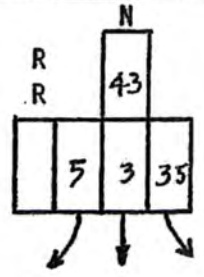
TOTAL 1072

INTERSECTION Topsail / McNamara - Clearview

Date May 2008

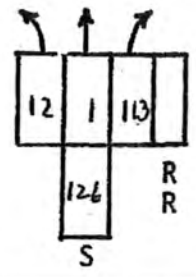
Weather _____

A M Peak
_____ to _____



Topsail

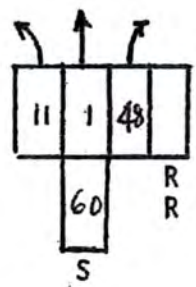
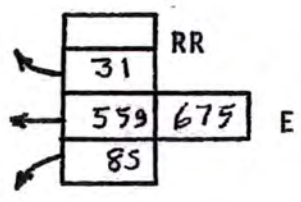
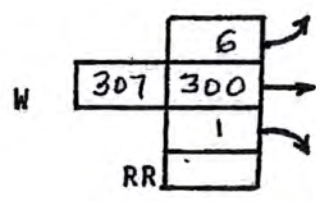
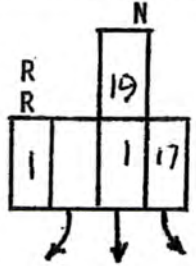
Topsail



McNamara

TOTAL _____

P M Peak
_____ to _____



TOTAL _____

INTERSECTION TOPSAIL / SUN VALLEY

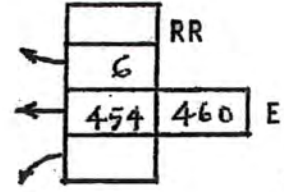
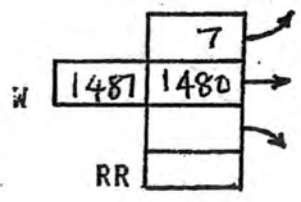
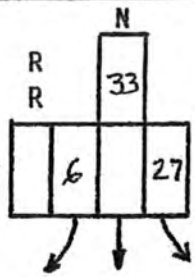
Date May 2008

Weather _____

A M Peak

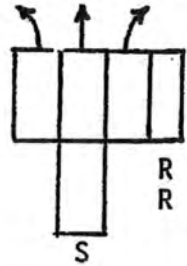
_____ to _____

SUN VALLEY



TOPSAIL

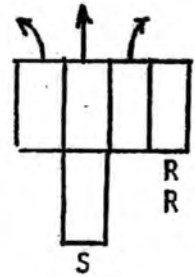
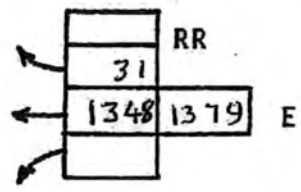
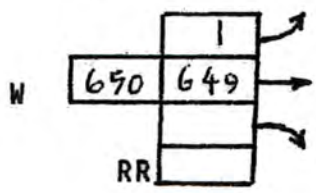
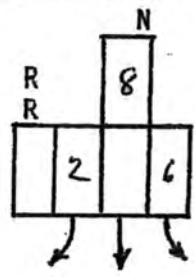
TOPSAIL



TOTAL _____

P M Peak

_____ to _____



TOTAL _____

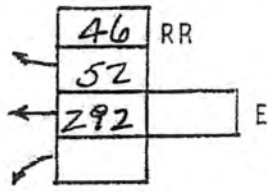
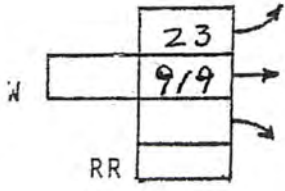
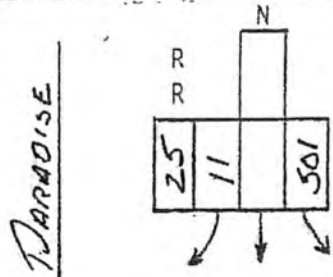
INTERSECTION PARADISE / TOPSAIL

Date APRIL 19/08

Weather _____

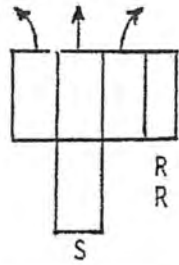
A M Peak

7³⁰ to 8³⁰



TOPSAIL

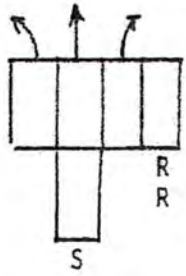
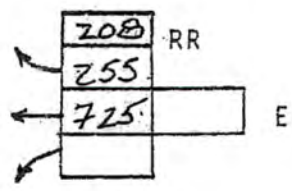
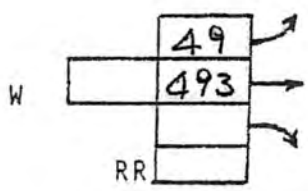
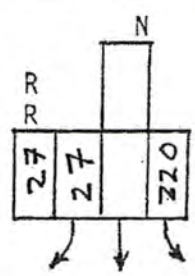
TOPSAIL



TOTAL 1869

P M Peak

4¹⁵ to 5¹⁵



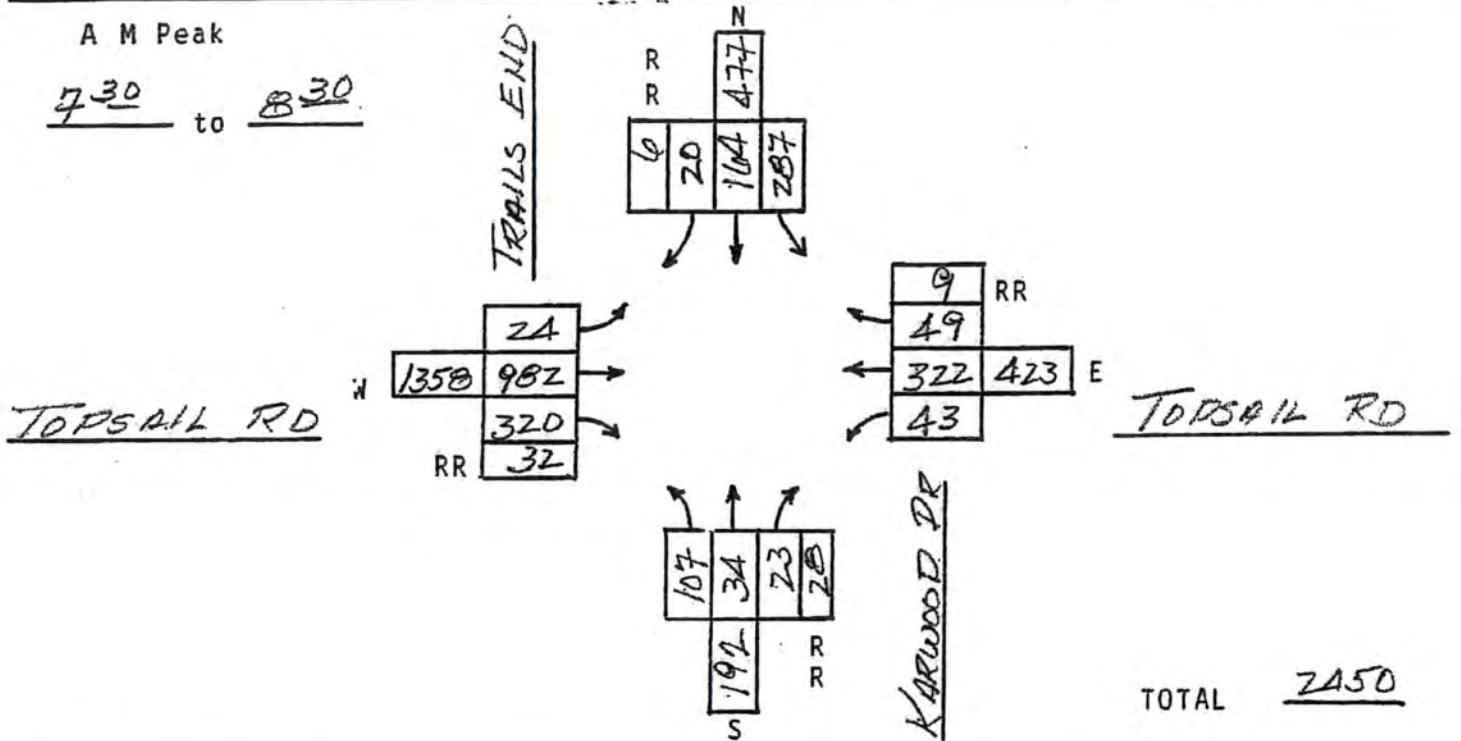
TOTAL 2004

INTERSECTION TOPSAIL RD / KARWOOD DR / TRAILS END

Date JUNE 12/08 THURSDAY Weather _____

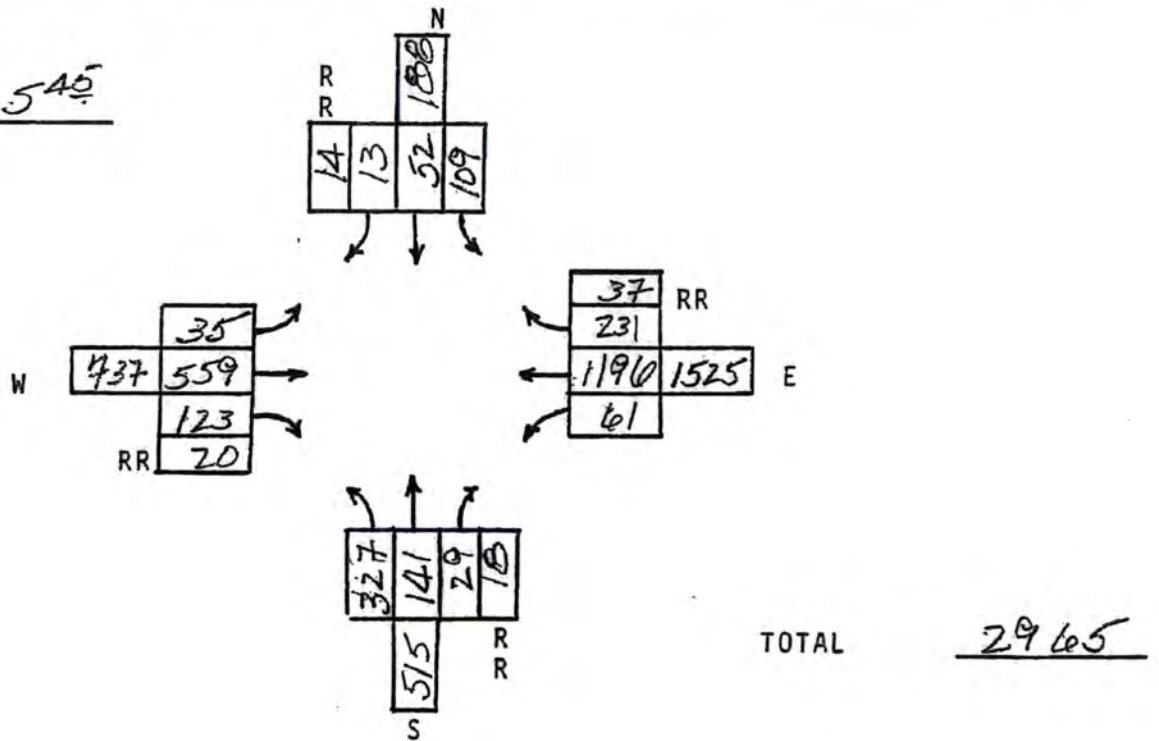
A M Peak

7:30 to 8:30



P M Peak

4:45 to 5:45



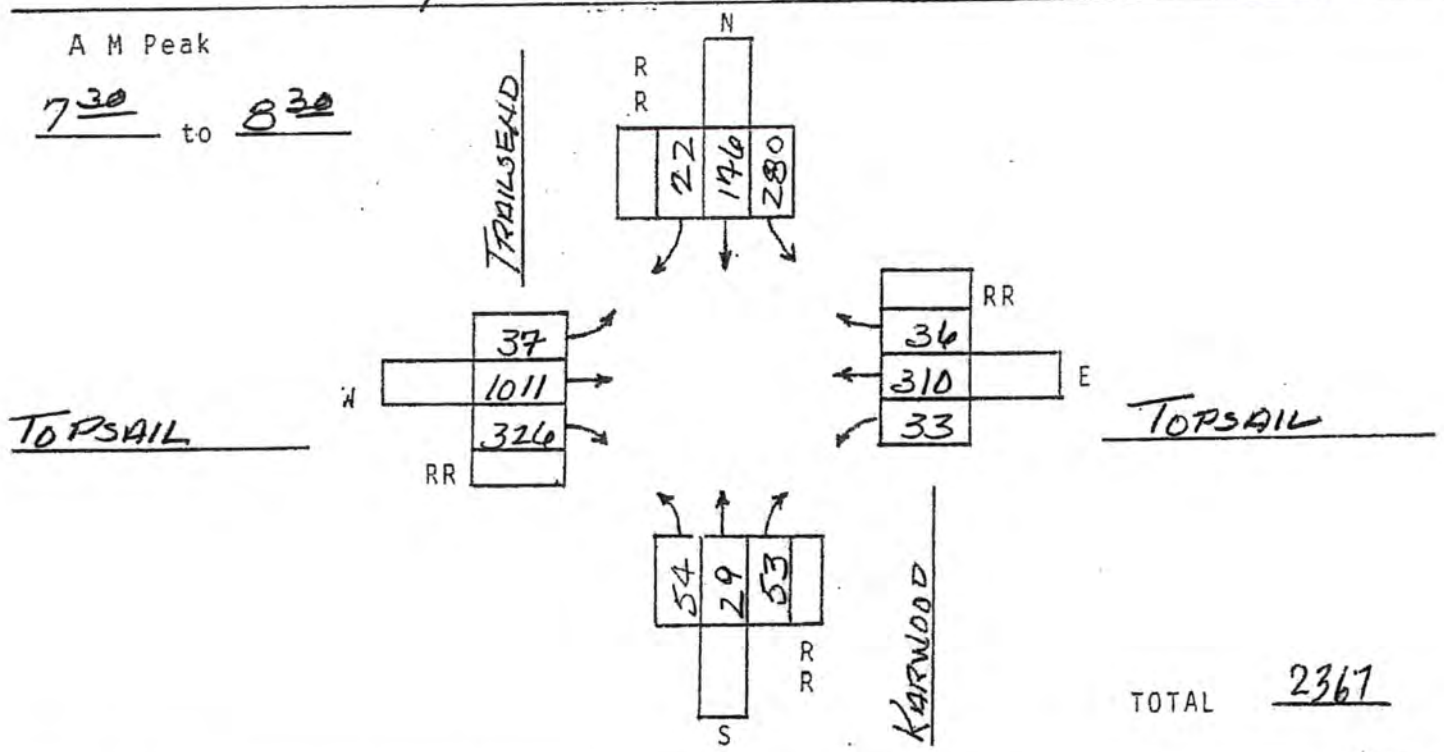
INTERSECTION TRAILS END / KARWOOD / TOPSAIL RD

Date APRIL 15 / 08

Weather _____

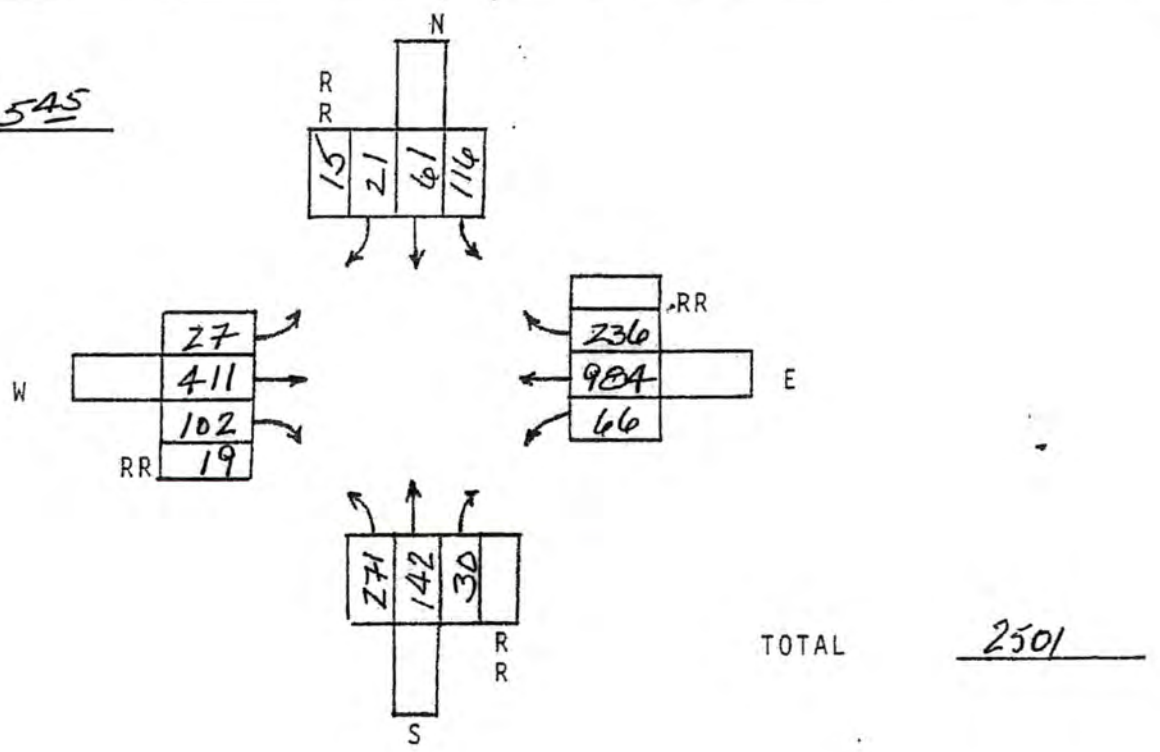
A M Peak

7:30 to 8:30



P M Peak

4:45 to 5:45



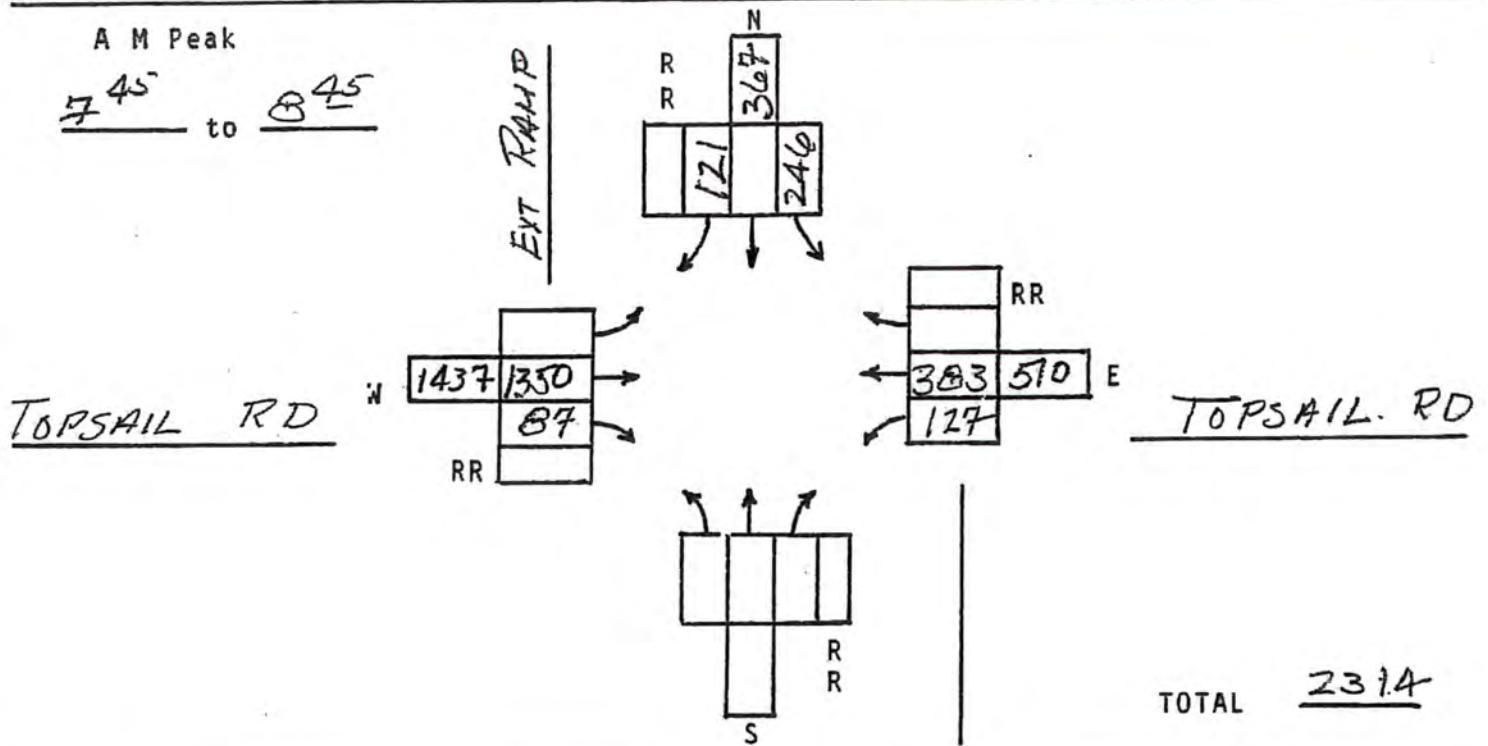
West Range

INTERSECTION TOPSAIL RD / OUTER RING RD INTER

Date JUNE 17/08 TUESDAY Weather _____

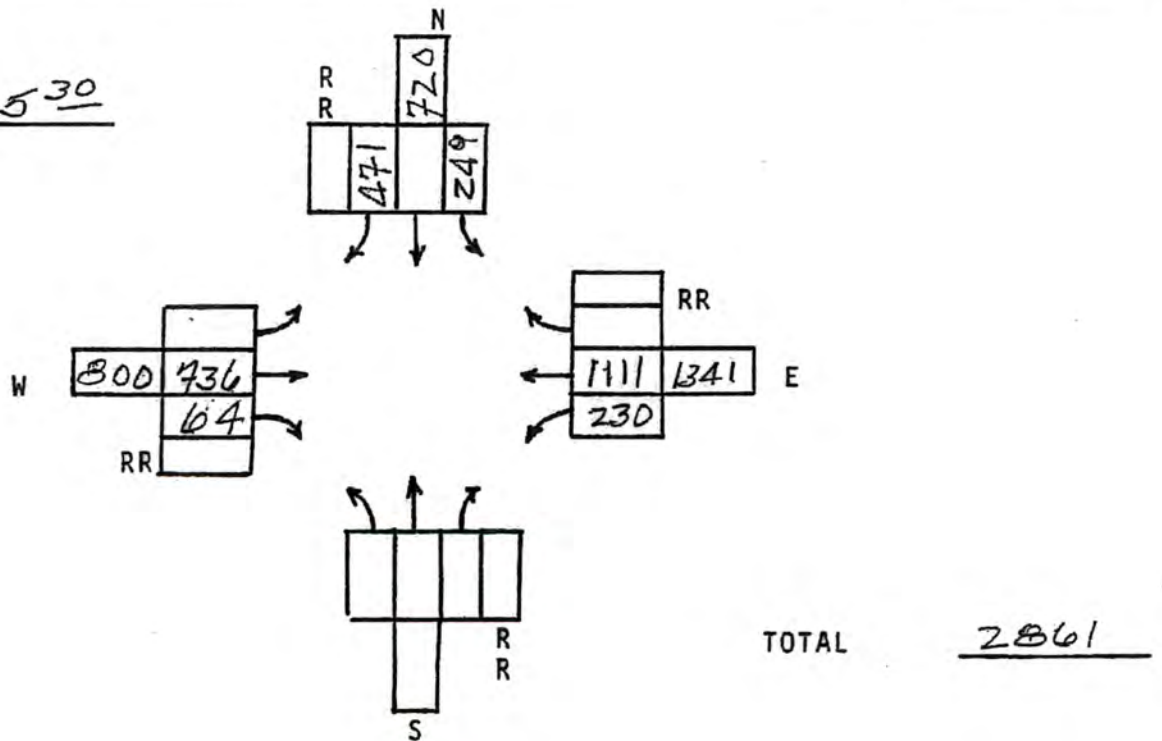
A M Peak

7⁴⁵ to 8⁴⁵



P M Peak

4³⁰ to 5³⁰



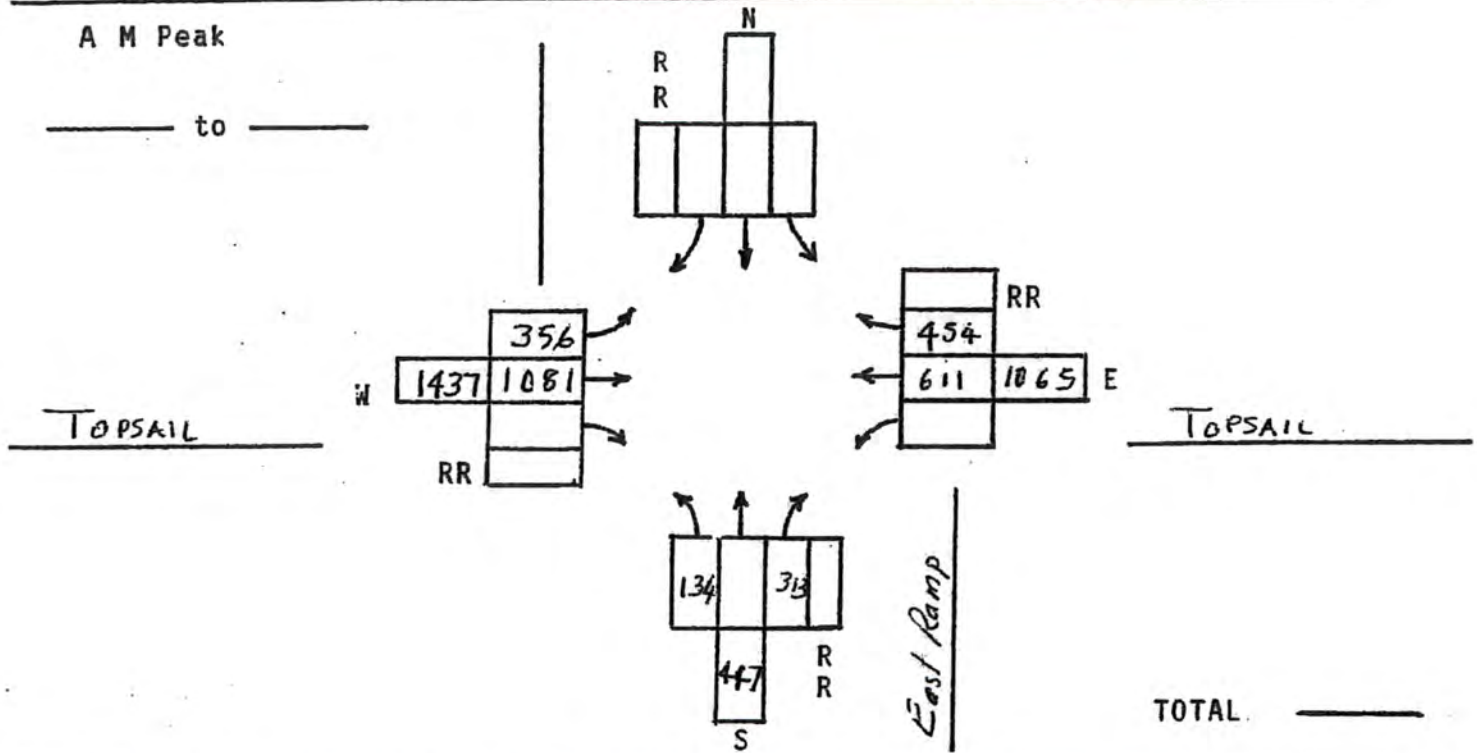
INTERSECTION TOPSAIL / TCH (East Ramps)

Date JUNE 2008

Weather _____

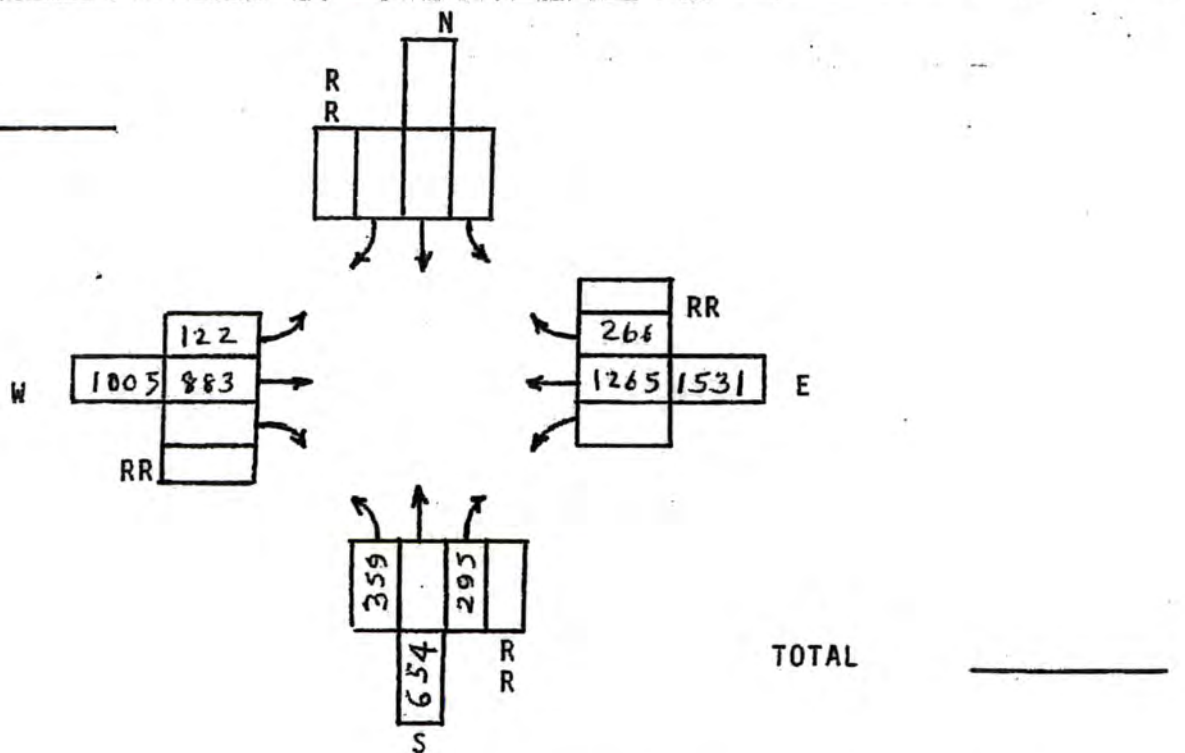
A M Peak

_____ to _____



P M Peak

_____ to _____



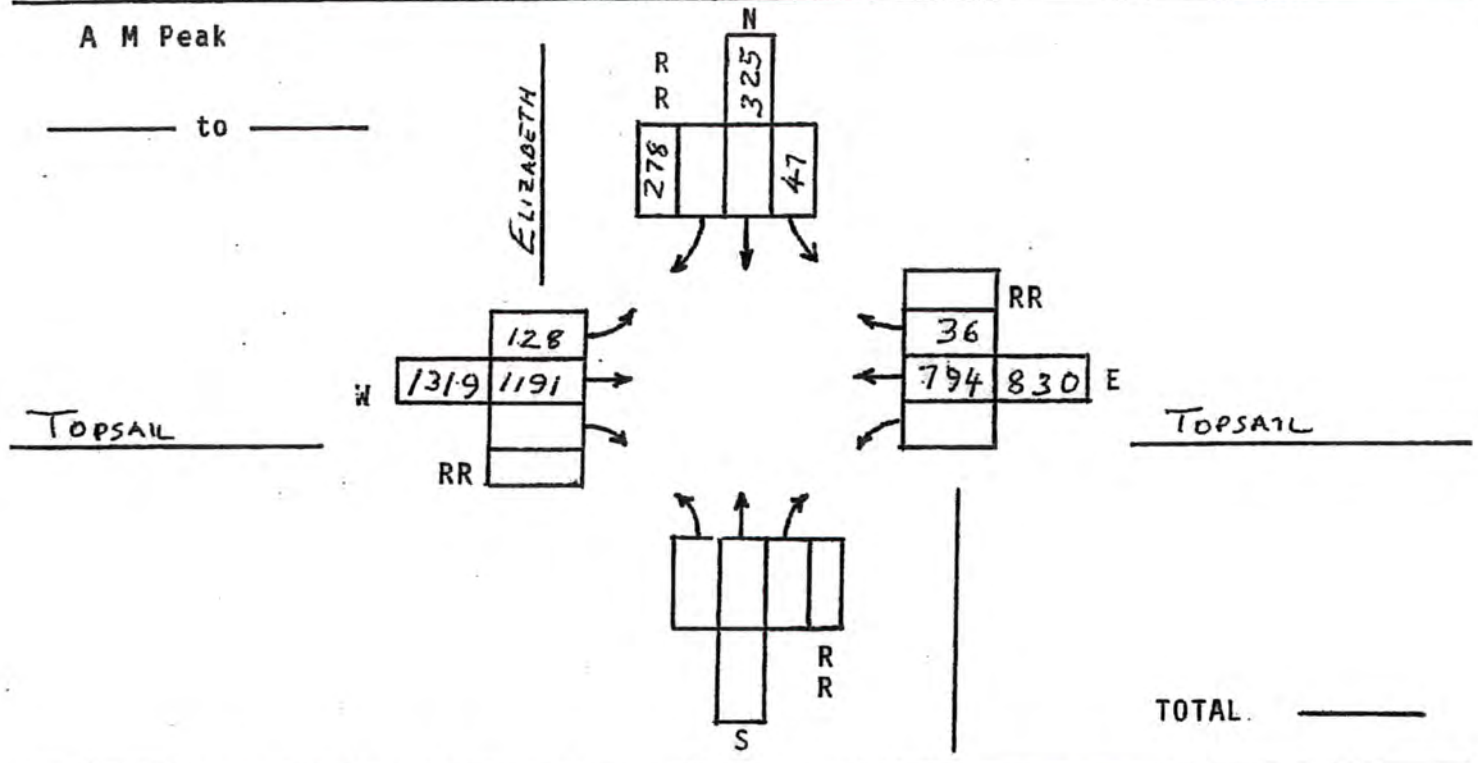
INTERSECTION TOPSAIL / ELIZABETH DRIVE

Date JUNE 2008

Weather _____

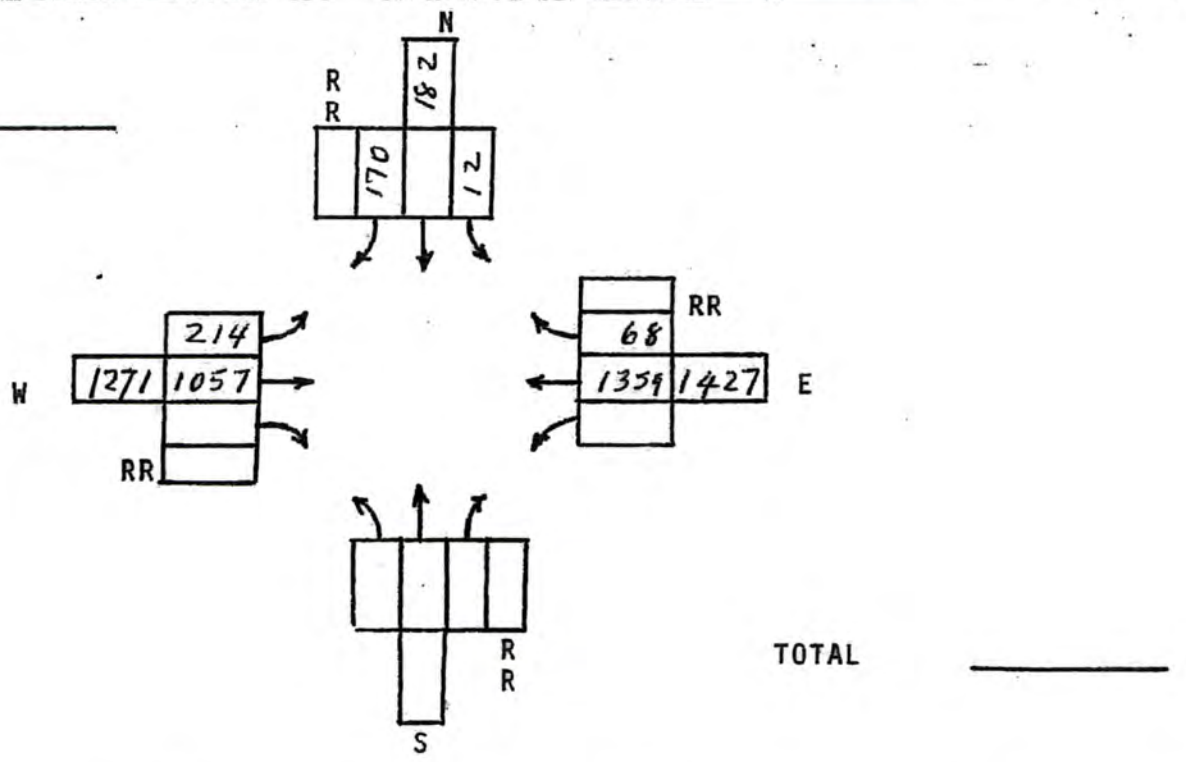
A M Peak

_____ to _____



P M Peak

_____ to _____



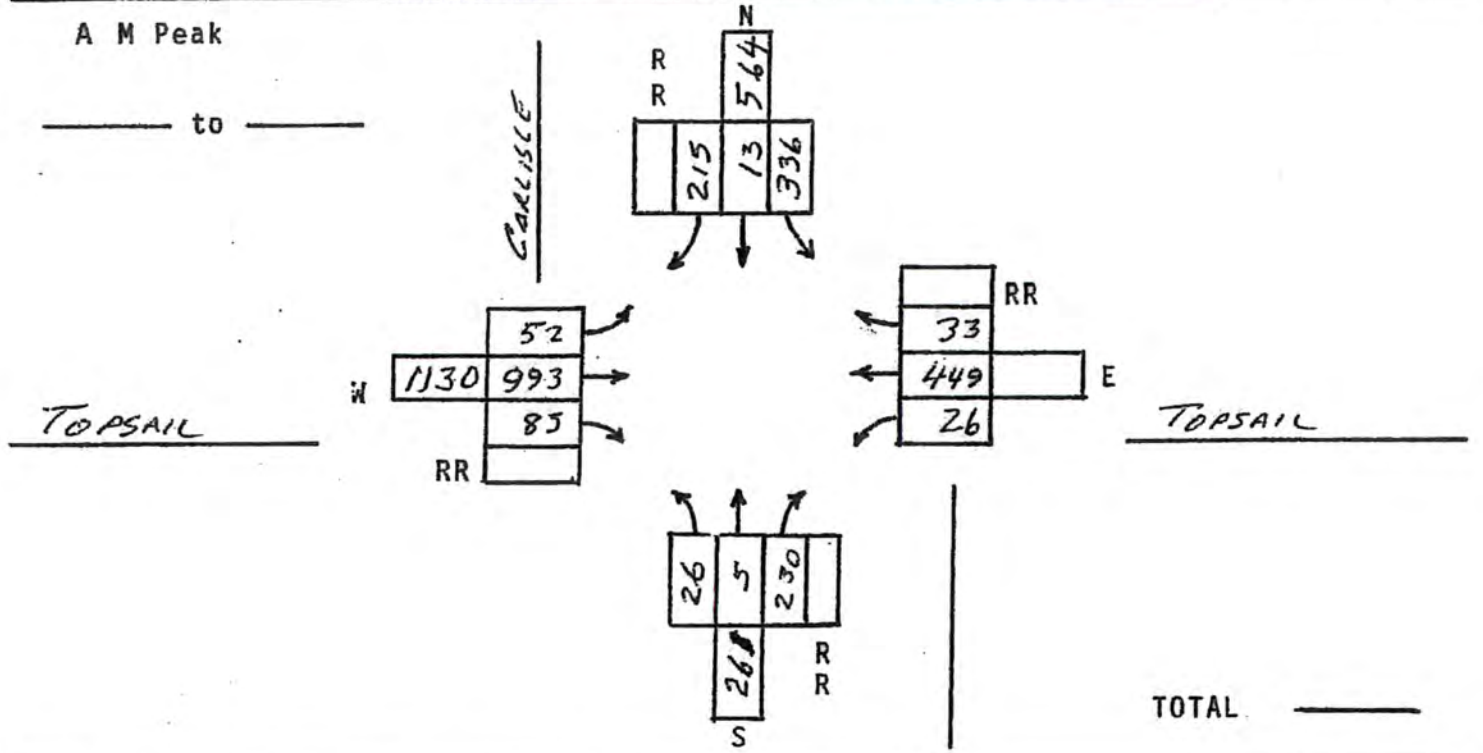
INTERSECTION TOPSAIL / CARLISLE - St. Annes

Date June 2008

Weather _____

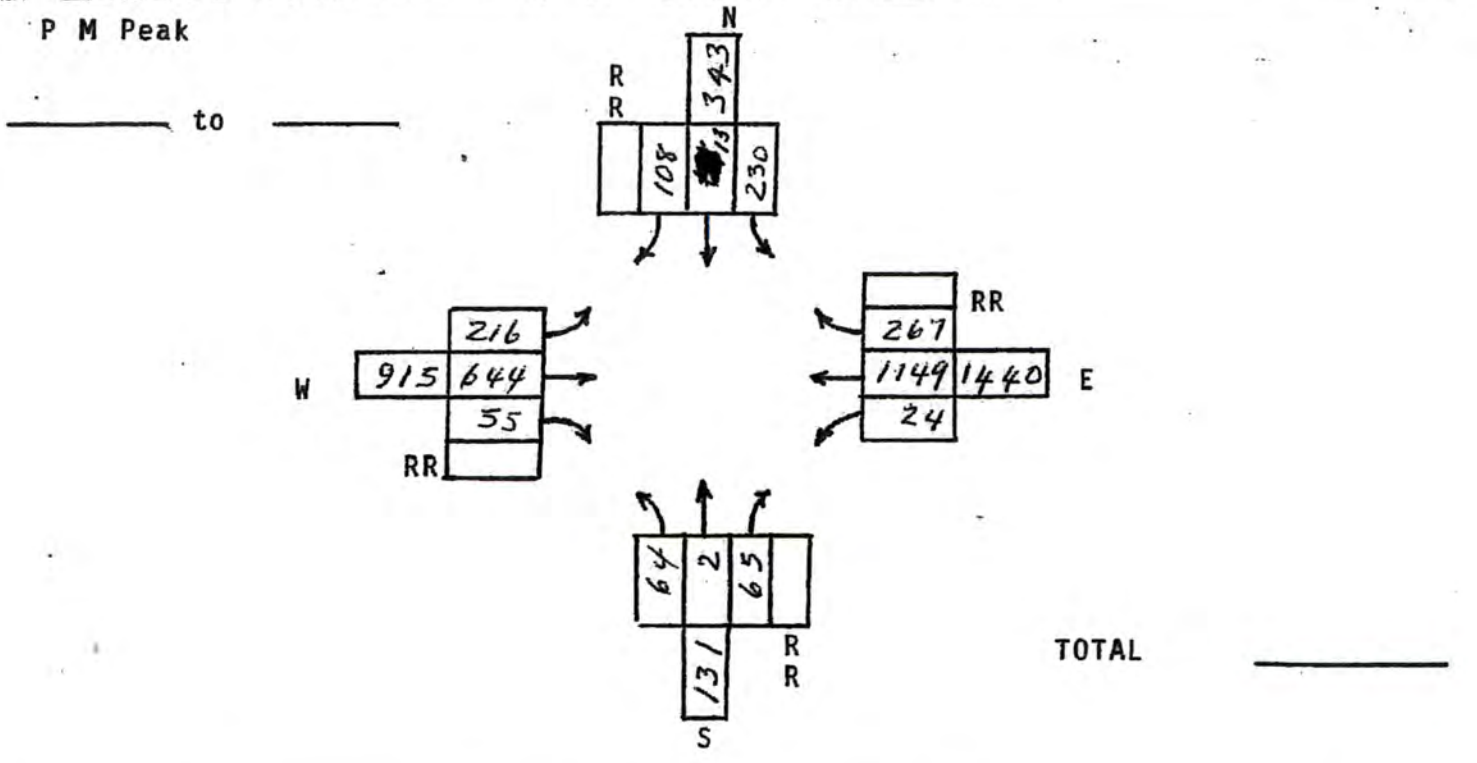
A M Peak

_____ to _____



P M Peak

_____ to _____



APPENDIX B

Verbatim Comments from Open House

APPENDIX B

Responses to questions on the comment sheets provided at the Open House October 2, 2008.
A total of 16 comment forms were filled out.

Do you think a comprehensive concept plan is important to do before development begins?
Why or why not?

A- N/A

B- Absolutely, You have to give the residents an idea of what's going on even if it's worse case scenario.

C- The people who live in this area breathe the air, raise their children, grow foods. YES – we want to be part of this plan. ITS OUR LIFE, this area!

D- How else can any development move forward if there is not a comprehensive plan. BUT there should be meaningful input from existing Paradise residents.

E-Yes – however there is no guarantee that what is proposed will be developed.

F- N/A

G-N/A

H-Absolutely. The reasons are obvious. With all due respect, this is a rhetorical question.

I-Yes. Provides opportunity to consider, plan and weigh options prior to action. However, enforcement of regulations is also important to keep in mind; make the regl “stick” and don't allow easier changes after the fact.

J-Of course a plan is important- but if there are objections from citizens – council MUST listen. For every person here, there are hundreds who didn't know about the meeting.

K- VERY important. Planning growth and STICKING WTH IT allows the environment and people to live together.

L-N/A

M-Yes, very. The concept seems to have taken into account people's concerns about green spaces but the huge number of proposed houses is a concern.

N- Yes-

O-N/A

P-Yes there are too many nasty examples of growth without planning – pick any place in St. John's

APPENDIX B

Please explain what aspects of the proposed concept plan you would change?

A – Not necessary change but clearly define how development along the Topsail/Three Island Pond Road boundary is controlled to protect against increasing runoff into the Topsail Rd/3 Is Pond waterway from sewage, fertilizers, pesticides, and rainfall from defoliation.

B- You are doing it backwards. A lot of the amenities have to be built before you expand the community so largely even it's not your responsibility (i.e. schools – not enough room to house the ones we've got. Same goes for recreation fields, etc.)

C- I am not a planner so I can only speak as a concerned resident. The environment needs more attention. The traffic, even if you build the roads, will affect our environment.

D- N/A

E-Traffic flow and access to Topsail Rd location too close together.

F- Buffer zones around ponds - keeping wetlands

G-N/A

H-Larger buffer on West side (rail bed) and around transmission line. Make lots bigger (I envision another Cowan Heights in my backyard). Ensure streams running down through Three Island Pond properties are not disrupted. Nothing over two storeys.

I-Buffer zones around ponds and bordering Three Island Pond Rd enlarged. Definitive plans in place re septic on hills behind Three Island Pond prior to developing that specific area.

J-Almost all of it. This area is an historic one and one of the only green space left. There are protected area which you seem to know nothing about.

K- Too many houses!

L-N/A

M-I would reduce the number of homes and keep the development father away from the trailway. Its still very close to Three Island Pond Rd.

N-Concept plan has to be approved by Council – too soon. I feel its been run through too fast for people to consider.

O-N/A

P-N/A

Please explain what aspects of the proposed concept plan you support?

A – I support the plan in principal because it provides a measure of control over development. I just hope that profit seekers do not erode the plan into non-existence from "a thousand little cuts".

B- NONE

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C-N/A

D- N/A

E-Maintaining buffer around pond but needs to be bigger buffer.

F- N/A

G-N/A

H-Larger lots; green space; walking trails; any and all buffers; no access to Shalloway Place is huge issue!!

I-N/A

J-If I believed you, which I don't, I would support your incorporation of green space.

K- Trailways, buffers, larger lots, parks, etc. are good plans

L-N/A

M-I'm glad that the ponds will remain green all around with many nature trails. I'm very pleased that there is no connection through Shalloway.

N-I realize it is realistic to know that Paradise get "uglier". That can't be helped –its called progress!

O-N/A

P-Growing to a plan is a very good policy.

Other comments:

A- This development will dominate the view from the front of my house. We moved there 20 yrs ago. from Mt Pearl because we could not stand the incessant noise from so many neighbours so close. We, along with our little more distant neighbours, value highly our little bit of privacy and feel it will be sad day when we are again surrounded by "suburbia". Sure half of us up here don't like each other, but that doesn't matter, we love Topsail/3 Is Pond for the trees and space which keep us apart. Derek & Cynthia Brown – 153 Topsail Pd Road.

B- N/A

C-# 1 Environmental issues should be 1st concern – be responsible!

D- The existing roadway – "Topsail Highway" – requires major upgrading "NOW" not in the future! The 4-lane roadway needs to go all the way to Manuals Bridge (I do realize that CBS owns part of this strip)

E-Concerns with land-owned by other people - what they can do can be against concept. Council is well known to change.

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Need more recreation space

Alternatives to (north) traffic flow on Topsail Rd

F- Thank you for making a plan – with our future in mind. A concept only – but at least thinking of the future.

G-If there is 650 acres that equals 65 acres of green space. DO NOT make it CASH IN LIEU.

H-Concern about runoff. Topsail Rd is going to become another Kenmount Rd during rush hours. Clear cutting of lots. Our property and those of my four neighbouring homes have a natural brook and duck ponds that flow down from the proposed development plan area. I envision either a dry river or a floodplain. All it takes is one mistake with a bulldozer and out brook is no more. The developer wants to fill this area with the most lots possible. I would too if I were in their shoes. The problem is that this area could be so much more if the vision was to produce a country setting with larger lot sizes like Topsail Pond and Three Island Pond are right now. Fair enough. We probably can't stop that. But down the road if ever a developer, consultant or politician proposes connecting to Shalloway Place, there is going to be a revolt. That would change the entire complexion of this area and destroy the very reason why we chose to live in Three Island Pond/Topsail Pond to begin with. One last point. With every home that gets built in Paradise, our commuting time to St. John's increases. Topsail Road is full of bottlenecks and it is only going to get worse.

I-Consideration of 2800 homes/4000 cars/1100 people = traffic congestion plus lack of school facilities in place to accommodate this new population.

J-I think enough people are impacted that you should hold a referendum on this issue. Most important: Council MUST have a public meeting before they implement this. You know FULL well no one who is informed in this matter would agree to it.

K- Thank you for having the insight to look to our future and allow the "country" theme to stand.

L-Please encourage the council to begin recycle program

M-I'm concerned about the impact on my well with development so close to my backyard on Three Island Pond. Also the overcrowding of our schools. We need more schools. Also the huge increase in traffic on Topsail Rd. needs to be dealt with.

N- Paradise has no one hired to look after parks or environment spaces – will this change? Green space- looks ugly not looked after. Buffer zones around lakes – what is this – not here. Bulldozers go right down to lake and then sand is placed to look like Fla. or somewhere! Three Island Pond is already polluted – is this protecting our waterways? Water/sewer has not always "worked" in Paradise or CBS – leaks, back-ups occur locally to where it empties or treated. There are too many tiny (?) toe (?) houses in Paradise. We don't need more. The view of Paradise from the Arterial Hwy is so ugly already. The "fastest growing community" is not "to me" a good thing – as council brags. When a dveter (developer?) tells me it is "fast growing" I worry!! Sandra (?) Mosher (?) 781-0131

O-Blue-Green Algae problem! Yes. That is fed by too much nitrogen and phosphorus in H2O. Runoff from development flows down to Three Island Pond and Topsail Pond= more pollution and possible added blue-green algae problem – trucks digging – where is all the "stuff" going to be dumped. Sandra (?) Mosher (?) 781-0131

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P-With a very hostile crowd, the presenter did a very credible job. PS I'm not from Paradise but would now consider it.

Emails received October 3, 2008 regarding the Open House.

#1

Good morning Dawn. Once again I commend you on a good presentation last evening and as discussed with you briefly I would appreciate any electronic version of your presentation given last night and more importantly the schematic for the proposed concept development. I'd like to have more time to review.

In the meantime, I can offer some general comments.

I built in Paradise about 17 years ago because it was a community close to many amenities while at the same time offering real rural/country living with walking trails, access to waterways and ponds, and essentially free of a lot of the traffic and hustle and bustle of city dwelling. This was the attraction for me and many others to Paradise.

I am not against development provided it is done properly. I understand housing developments are inevitable for a community such as Paradise. You made a comment last night when responding to a question on the percentage of green space and how the 10% figure is derived. You said "this is the norm in other provinces and municipalities across Canada". However, much like Dorothy was told "You're not in Kansas anymore" I have to say we are not like other provinces. I think you made the comment that the present schematic is the "worst case scenario" and I hope it is. I hope that there is opportunity recognize some larger buffer areas and consider the appeal and uniqueness of the area.

Here are some quick points for consideration:

The railway, to keep its "walk in the woods" appeal, should have a sufficient buffer that provides an unbroken natural screen from any developments..

The Octagon Pond walking trail should offer the same.

TRAFFIC, TRAFFIC, TRAFFIC – this is a concern for most. This really needs to be addressed properly (and I realize a traffic assessment is in the works). I hope we are not just counting cars because one of the biggest problems in and around Paradise is cars exceeding the posted speed limits (I know because I live in a 40km area). I would hope that the road speeds expected for these developments will not be exceeding the 40-50km range. Apart from the noise pollution from speeding traffic there is the increased potential for accidents especially when navigating highly populated neighborhoods. With work potentially beginning next Spring I would suggest that work will need to begin soon to address the capacity deficiencies with Topsail Road.

I realize this may not fall under your purview but there is a real need in Paradise to complete its community by having a proper high school. I know this issue has been pushed in the past but the effort needs to continue here. Somewhere in our community plan we need to account for a

APPENDIX B

potential high school near our newer and younger neighborhoods. By copy of this e-mail I hope Council will continue efforts here.

I also would suggest that during the construction phase, especially if blasting is required, that mitigative measures be in place to address negative impacts. My own case in point is since a subdivision (Topsail Terrace) was blasted and constructed near my property I have had a severely reduced flow rate in my well - a problem I have not been able to rectify since.

Dawn I look forward to receiving the information requested at which time I may have more specific comments.

Thanks

#2

Hi, Dawn. It was good to meet you last evening and I thank you for a very helpful, interesting, and informative presentation.

I'm sure that, if most of those of us who live in the Topsail Pond/Three Island Pond area had our ways, there'd be no development of any kind in the remaining open areas that surround us. We all use those areas as recreational space now, and we all chose to live here because of the rural nature of the area and the ready access to these beautiful natural spaces.

That being said, I think that we have to recognize that development *will* come, and, realistically, the best we can hope for is to influence the quality of this development by ensuring that the Town of Paradise is fully aware of all of our passionate concerns about the integrity of our area and how we view these new projects in that context. It seems clear that you and your associates have researched the material relating to previous meetings and hearings on this subject and that you have actually listened.

There will be some of us that you will never satisfy, but I have to say that I feel that this proposed concept plan is definitely a move in the right direction. This is the approach to development that Paradise should have taken from the very beginning and should adopt as its standard on a go forward basis.

I have a number of neighbors who were not able to attend last night's session for various reasons. They asked me to pick up any available information relating to this project for them.

You may remember me, Dawn. We talked for some time fairly early in the evening and I asked if you could send me your presentation in electronic format. I had also left you a v-mail earlier in the day. Could I ask you to send that presentation along to me at your earliest convenience, please?

Thanks again for your presentation and for your time and help on an individual basis, Dawn.

APPENDIX C

Potential Layout – Conceptual Drawing Only



Octagon Pond
w.l. 149.10

Rocky Pond
w.l. 151.86

TOPSAIL ROAD

MANUALS ACCESS ROAD

ACAN

Town Hall

Recreation Centre

Three Island Pond Road