

ENVIRONMENTAL ASSESSMENT REGISTRATION DOCUMENT
FOR THE
HIGHWAY 104 AT ANTIGONISH



Nova Scotia Department of Transportation and Public Works
P.O. Box 186, 1969 Upper Water Street
Halifax, Nova Scotia B3J 2N2

November, 2001

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1.0 INTRODUCTION

This project description is submitted to initiate the Environmental Assessment process for the Department of Transportation and Public Work's (TPW) proposed Highway 104 Antigonish Project as indicated on Figure 1.0 and described in more detail in Section 3.3. The roadway is planned as a four lane divided 27.6m wide median fully controlled access freeway and is intended to divert through traffic from the uncontrolled and heavily developed sections of the existing Highway 104 through the Antigonish and South River areas. The length of the proposed highway is approximately 15km.

A functional analysis, a preliminary environmental screening, and public consultations have been conducted as part of the preliminary planning for the proposed roadway. The project has also undergone a detailed safety review, independent peer review, and detailed assessment of environmental impacts at the South River crossing. The proponent recognizes that much of the information to date is preliminary and some elements may have to be investigated in more detail as part of the Environmental Impact Assessment (EIA) and Screening.

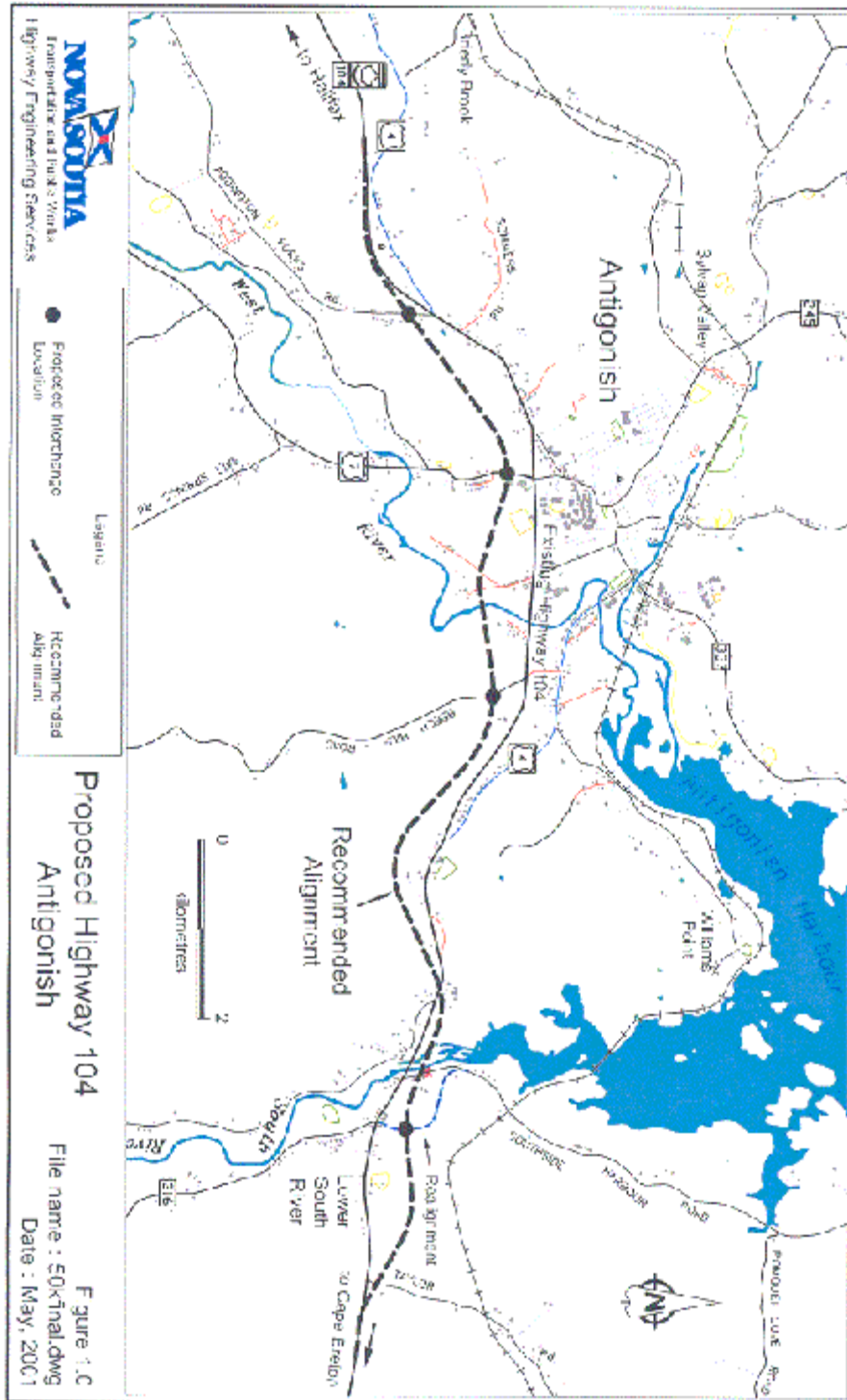
Highway 104 is part of the National Highway System and therefore the project is eligible to be cost shared 50/50 with the Federal government. Under current legislation this project will go through the Provincial EA process as a Class II undertaking and also through CEAA because of the anticipated funding trigger.

2.0 PROPONENT DESCRIPTION

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Postal Address: P.O. Box 186, Halifax, Nova Scotia B3J 2N2
Street (courier) Address: 1969 Upper Water Street
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Deputy Minister	Contact Person for Environmental Assessment
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Figure 1.0 - Final Alignment



3.0 PROJECT DESCRIPTION

3.1 Location

The project is located near the Town of Antigonish and community of South River, extending from Addington Forks Road easterly 15km to Taylor Road. The proposed alignment, shown in Figure 1, closely parallels (maximum separation 600m) the existing Highway 104.

3.2 Rationale

The primary function of the 100 series highway network in Nova Scotia is the safe and efficient movement of large volumes of people and goods over long distances at high speeds while minimizing negative economic, social, and environmental impacts.

The existing section of Highway 104 through the Antigonish and South River area is characterized by high traffic volumes, a high percentage of heavy truck traffic, poor geometry, uncontrolled access, strip development, pedestrian activity, and a mixture of through and local traffic. These characteristics are not compatible with the intended function of the 100 series highway system and have resulted in poor levels of service and safety performance.

Upgrading of the existing highway to a 100 series controlled access standard is not feasible due to high costs and unacceptable social and economic impacts to the local community. TPW has therefore undertaken a corridor preservation study to identify and preserve a corridor for a new four-lane, 27.6m wide median, controlled access highway. TPW has tried to identify a routing for this proposed highway that best meets the objectives and needs of both the local communities and the Province while minimizing socioeconomic and environmental impacts.

3.3 Description (See Figure 1.0)

The proposed Highway 104 project begins at the westerly end near Addington Forks. Travelling easterly the highway crosses Trunk 4, West River and Beech Hill between 300m and 600m south of the existing Highway 104. Just west of the South River structure the alignment crosses from the south to the north side of the existing Highway 104 and remains on this side to its eastern terminus near Taylor Road.

Interchanges are proposed at Addington Forks Road, Trunk 7, Beech Hill Road and the extension of Route 316 in Lower South River. The proposed highway will be controlled access with no at-grade intersections or driveways. The existing South Side Harbour Road access to Highway 104 will be severed and this roadway will be relocated to the Route 316 interchange. An overpass crossing without

direct access is proposed at Taylor Road. There are two major water crossings located at West River and South River and a number of smaller water crossings requiring culvert installations.

3.4 Alternatives to the Undertaking

Alternatives to the proposed undertaking include doing nothing, other modes of travel, upgrading the existing Highway 104, and alternative alignments.

Do Nothing

With the “do nothing” option, existing levels of service and safety deficiencies on the section of Highway 104 through the Antigonish and South River area will worsen as automobile and truck traffic volumes continue to increase. The social and economic impacts associated with the “do nothing” option are considered to be unacceptable.

Other Modes

Other modes of efficient passenger travel and goods movement over long distances include air, rail, transit, and marine. With regards to goods movement the only realistic alternative to trucking is rail. However, recent trends have seen a significant shift from rail to trucking and this is unlikely to change in the near future. Rail, transit and air travel are all feasible alternatives for transporting passengers. Currently there is no passenger rail service between Truro and Cape Breton and very limited long distance transit service. Air service is prohibitively expensive for most travelers and by far the least sustainable method of travel. Therefore other modes of travel are not seen as effective alternatives.

Upgrading the Existing Highway 104

Upgrading the existing two lane uncontrolled access highway to a 4-lane 27.6m wide median 100 Series design standard would be very costly and extremely disruptive. Ribbon development is located in close proximity to the existing Highway 104 over much of its length within the study area. Upgrading of the existing highway would directly impact or significantly disrupt a large percentage of this ribbon development. The result would be very high costs for property acquisition and compensation claims, lost employment, a decreased tax base, and reduced access. This alternative is not acceptable to the local community and would be prohibitively expensive. This option would also continue to see the mixture of through and local traffic which is not desirable or consistent with the functionality of the 100 Series highway system.

Alternative Alignments

Two other feasible alignment options were identified and presented to the public. One alternate alignment was located between one and three kilometers south of the existing Highway 104. Although less expensive and less disruptive, this option was strongly opposed by local business interests fearful of lost revenues from diverted traffic. The other alternate alignment was similar to the proposed alignment with the exception of a short section near the Town of Antigonish. This alternative, although supported by some local businesses, has major flaws related to safety, access, and functionality. Based on staff recommendations and a detailed independent safety review both alternative alignments were rejected by TPW in favour of the proposed alignment. The proposed alignment was subjected to an independent peer review by experts in the field of highway planning and design which supported the alignment selected.

3.5 Preliminary Design

The functional design considered the highway to be a fully controlled access, four lane divided, 27.6 metre wide median facility with a design speed of 120 km/hr. The proposed right of way width is 150 metres which will allow for proper slope design in areas of deep cuts and fills, and provides an increase in the buffer between the highway and adjacent properties. The proposed roadway centre line spacing is 35 metres which will allow for better median slope and ditch design, and for greater independence in the vertical design of the eastbound and westbound roadways. Figure 2.0 provides a cross section of the proposed highway. The estimated cost of construction for the 15 kilometre section, including interchanges, connector roads, and structures, is \$65 million. Property acquisition costs are estimated to be an additional \$5.0 million.

A preliminary environmental screening of the entire study area was conducted early in the route location process. Based on this screening potential constraints to highway construction and operation were identified and broad corridors for the proposed alignment developed. Several alignments were investigated within each corridor and three feasible options were identified. After detailed analysis of each option the alignment shown in Figure 1.0 was selected.

3.6 Public Consultations

Three public consultations have been held for this project, all in the Town of Antigonish. The first, held in May 1997, presented the preliminary environmental screening results and solicited opinions related to very broad corridors being considered and potential access locations. The second, held in May 1998, presented three specific alignment options including access schemes. Appendix "B" contains the May 1998 Public Consultation Summary Report. The third, held in May 2001, presented the recommended alignment for EA registration. The public will have further opportunity for input during the EA approval process.

Attendance at the first and second public consultations was approximately 300 and 700 respectively, while less than 200 attended the third. Most highly supported the project, however the community was divided on the issue of which alignment option should be selected. The two primary areas of concern for most people were economic impacts and safety.

3.7 Schedule

The remaining phases required prior to construction include completion of the environmental impact assessment (EIA) and CEAA screening, detailed field survey and geometric design, and acquisition of the required right of way. This is estimated to take four to five years to complete. Construction thereafter will depend on the prioritization of this project with other provincial highway construction projects, and the availability of funding.

The proposed Highway 104 is expected to be maintained and to remain in operation indefinitely.

4.0 EXISTING ENVIRONMENT

A preliminary environmental screening conducted in 1996 identified many environmental, social, and economic constraints in the study area at the beginning of the planning process thus minimizing the chances of repetition of work following the EIA. The environmental screening study boundary is shown in Figure 3.0 and a summary of the screening results are provided in Appendix A.

4.1 Biophysical Environment

Geology

The proposed alignment is underlain by formations of the Canso and Windsor Group. There are no acid generating rock types within the project area. A portion of the alignment may pass over karst terrain near Lower South River. There are known mineral and industrial occurrences within or near the alignment corridor including gypsum, limestone, lead, manganese, and clay (kaolin). There are no occurrences of underground mining.

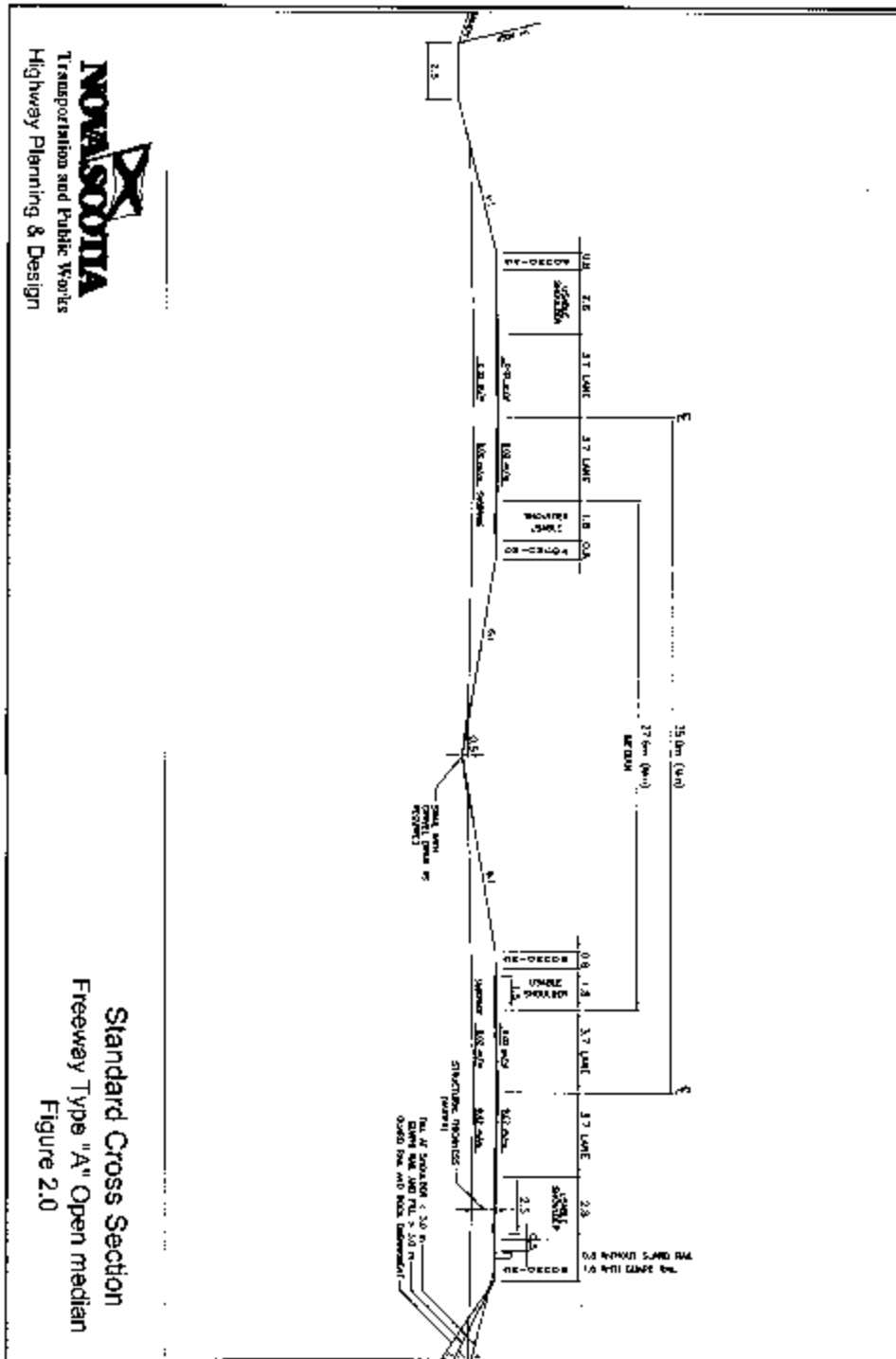
Soils

The project area is covered by a compact till, chiefly composed of silt and some clay. This surface unit may exhibit some natural constraints attributed to erosion.

Wetlands

The proposed alignment impacts several wetlands. None are managed wetlands and only one, located at South River, is considered significant with respect to the provision of habitat for wildlife. A detailed environmental impact study has been conducted at the South River crossing. This study determined that the wetland at South River is a tidal marsh. Although very productive with a diversity of animal and plant life, the study predicted long term negative impacts on the marsh will be negligible. All wetlands impacted will be evaluated and effects mitigated in

Figure 2.0 - Typical Cross Section



accordance with the Nova Scotia Wetlands Directive and the North American Wetlands Conservation Council (Canada) Wetland Evaluation Guide.

Terrestrial Habitat

Much of the proposed alignment is located on the fringe of heavily developed urban areas, particularly at the western end near the Town of Antigonish. The majority of lands crossed are wooded. The proposed alignment does not impact any ecologically significant terrestrial habitats and there are no known occurrences of rare and/or endangered plant or animals species within the project area. There are several known eagle and osprey nesting sites located near the proposed alignment.

Aquatic Habitat

During the preliminary environmental screening Fisheries and Oceans Canada (FOC) were contacted to determine the location and characteristics of any watercourses within the study area considered to be significant because they are known to provide habitat for fish with recreational and/or commercial value. The following watercourses impacted by the proposed Highway 104 alignment were identified by FOC as being significant.

- Brierly Brook, although not crossed by the alignment this watercourses may be impacted.
- West River, Station 5+800.
- Unnamed tributary to Antigonish Harbour, Station 8+150
- South River, Station 11+350

The Navigable Waters Protection Branch of FOC was also contacted during the preliminary environmental screening. They were unable to assess the watercourses due to the large size of the study area, however, it is assumed that the West and South Rivers, and possibly some smaller watercourses crossed by the alignment, are navigable waters.

There are no lakes within the study area.

4.2 Socioeconomic Environment

Residential Development

The proposed alignment is located near urbanized areas and there is relatively dense residential

development located in close proximity to the proposed highway at several locations.

Existing Land and Water Uses

The majority of lands impacted are privately owned undeveloped woodland with some managed wood lots. Other land uses impacted include agricultural, commercial, institutional and residential.

Recreation

The proposed alignment is expected to have very little impact on recreation in the area. The only known recreational activities that may be negatively affected are snowmobiling, fishing, and hiking.

Utilities

The proposed alignment crosses a high voltage power transmission line, several lower voltage power transmission lines, telephone and cable lines, and municipal water and sewer lines.

There are currently no gas pipelines in the study area.

Heritage Resources and Archaeology

There are no heritage properties, National Historic Sites, or known archaeological/fossil sites within the corridor for the proposed alignment.

Federal Lands

The project does not encroach on federal lands.

5.0 PROJECT/ENVIRONMENT INTERACTIONS

5.1 Biophysical Interactions

Geology

The project has the potential to expose karst rock formations near South River that could result in the development of sink holes. Based on available geological mapping karst terrain is most likely to be encountered immediately west of the South River crossing.

Soils

Silty soils characteristic of the area may be susceptible to erosion.

Wetlands

With the exception of the South River tidal marsh, the proposed alignment does not impact any wetlands considered significant based on the Canadian Wetland Atlas Golet Scores. However, any wetlands encountered will be evaluated based on established provincial and federal methods as mentioned on Page 7, and mitigation and compensation measures will be considered. Long term impacts to the South River tidal marsh are predicted to be negligible.

Avoidance of wetlands in the study area played a significant role in the location of the proposed alignment.

Terrestrial Habitat

Although there are no known rare or endangered plant or animal species within the corridor for the proposed alignment, there are known occurrences within the broader study area. Therefore, there exists some potential for impacts by the proposed alignment. A detailed flora and fauna study will be conducted as part of the EIA screening process.

Construction noise may disrupt nearby osprey during their nesting period.

Aquatic Habitat

Significant fish habitat could be adversely affected by the proposed alignment. See Section 4.1 for a list of the watercourses considered significant.

5.2 Socioeconomic Interactions

Residential Development

The proposed alignment will directly impact several homes and is in close proximity to residential development at several locations. Indirect negative impacts may include increased noise and pollution levels, and reduced access to properties. Some homes close to the existing Highway 104 may experience positive impacts as traffic is diverted to the proposed highway. Some proposed residential development may be impeded.

The 150 metre right of way provides an additional buffer between residential development and the proposed highway.

Commercial Development

The proposed alignment diverts traffic from the existing Highway 104 and may have negative economic impacts on some existing commercial development. The new highway also has the potential to open up new areas for commercial development and stimulate growth both locally and within the entire region.

Existing Land and Water Uses

Agricultural lands and managed wood lots are impacted at several locations along the alignment. The most significant impact of this nature is to a dairy farm located just east of West River

Recreation

Recreational impacts include possible severing of local trails for walking, hiking, and snowmobiling. If these trails are well established access/underpasses may be provided to maintain them.

Utilities

Temporary disruption of power, telecommunication services, and municipal services may occur as they are crossed by the proposed highway during construction. Utilities are typically encountered at roadway crossing locations.

Heritage Resources and Archaeology

Although there are no known archaeological or heritage resources along the proposed alignment, the potential exists for project interactions. Detailed archaeological investigations will be carried out during the EIA screening process.

Transportation Network

The proposed highway will reduce traffic congestion and improve safety along the existing Highway 104.

6.0 MITIGATIVE MEASURES

As a minimum the following studies/investigations are required to further identify and quantify possible

project/environment interactions:

- Flora and fauna survey of the corridor;
- Archaeological reconnaissance survey of the corridor;
- Aquatic study of all watercourse crossings;
- Detailed wetlands impact analysis;
- Migratory birds survey

Environmental management and mitigation plans will be required that address the environmental issues associated with the construction and operation of the proposed roadway.

7.0 APPROVALS

Project approvals will be sought in accordance with the requirements of the following federal and provincial legislation and the regulations made pursuant to them:

- Canadian *Environmental Assessment Act*,
- Canadian *Environmental Protection Act*;
- Canadian *Fisheries Act*;
- Canadian *Migratory Birds Conservation Act*;
- Canadian *Navigable Waters Protection Act*;
- Nova Scotia *Dangerous Goods Transportation Act*;
- Nova Scotia *Environment Act*;
- Nova Scotia *Special Places Act*; and
- Nova Scotia *Wildlife Act*.

The construction of the Highway 104 Antigonish project will adhere to the most recent versions of the Department's guidelines and specifications including: Standard Specifications; Highway Design Standards; and Approval Process for Pits Containing Slates.

Relevant Nova Scotia Department of the Environment (NSDOE) guidelines and specifications include: Pit and Quarry Guidelines; Erosion and Sedimentation Control Handbook for Construction Sites; Guidelines for Sampling of Domestic Water Supplies in Conjunction with Construction of Highways; and Guideline for Environmental Noise Measurement and Assessment. In addition, the following joint provincial/federal guidelines and specifications may apply: Guidelines for Development on Slates in Nova Scotia; Environmental Construction Practice Specifications; and Environmental Protection Guidelines for the Application and Removal of Protective Coatings during Bridge Maintenance Operations.

In addition, all work will be conducted in accordance with the Nova Scotia Occupational Health and Safety General Regulations, or the relevant legislation in force at the time of construction.

8.0 SUMMARY

The proposed Highway 104 Antigonish project is viewed as an integral and necessary segment of the Provincial Primary Arterial Highway System, Trans Canada Highway System, and National Highway System serving provincial, national and international traffic. Although some adverse environmental impacts are anticipated, it is assumed that through careful identification of issues and subsequent design of the roadway, along with the creation of workable and effective construction and operation plans, any adverse impacts can be avoided or mitigated.

APPENDIX A - Preliminary Environmental Screening Summary

APPENDIX A - Preliminary Environmental Screening Summary

The preliminary environmental screening is used to identify and review potential environmental constraints. Information obtained during the review is based primarily on existing recorded information and knowledge of staff of various Government departments, Municipalities, organizations, local businesses, interest groups, and even the general public. Our environmental screening process and contacts are outlined in the Highway Environmental Database Study (HEDS) of 1991. The contacts list has been revised several times in the past 10 years, as would be expected.

A preliminary environmental screening for this project was conducted in the Winter of 1997. Screening data is intended to assist in the functional design phase of the corridor preservation process. By identifying as many environmental, social, and economic constraints in the study area at the beginning of the process, the chances of repetition of planning work following environmental assessment are greatly reduced.

The study area is shown on Figure 3.0. Categories, contacts and associated responses are summarized below.

Screening Summary

Category	Constraint	Organization/ Department Contacted	Constraint Present (Yes/No)	Comments
Geology	Mineral Resources	Nova Scotia Department of Natural Resources (DNR)	Yes	mineral resources include gypsum, limestone, lead, manganese, and clay
	Sand and Gravel Deposits	DNR	Yes	deposits located at the western portion of the study area
	Mineralized Slates	DNR	No	

Category	Constraint	Organization/ Department Contacted	Constraint Present (Yes/No)	Comments
	Shallow Bedrock	DNR	No	
	Karst Terrain	DNR	Yes	karst topography in the South River area
	Highly Erodible Soils	DNR	Yes	sandy and silty tills
Terrestrial Environment	Wildlife Management Areas	DNR, Environment Canada (EC)	Yes	Dagger Woods Marsh
	Ecological Reserves	DNR, Nova Scotia Museum (NSM)	No	
	Rare and Endangered Species	DNR, NSM	Yes	several species of rare plants and animals exist in the study area; survey recommended
	Managed Wetlands	Ducks Unlimited	Yes	Dagger Woods Marsh
	Important Habitat	DNR, EC	Yes	eagle and osprey nesting sites
	Important Wetlands (Golet Score >60)	DNR, EC	Yes	Dagger Woods Marsh, South River estuary
	Protected Beaches	in house	No	
	Old Growth Hardwood Stands	DNR	Yes	one site adjacent West River approx. 2km south of existing Hwy. 104 (not field verified)
	Trees of Distinction	in house	No	
Aquatic Environment	Rivers/lakes	in house	Yes	West River, South River

Category	Constraint	Organization/ Department Contacted	Constraint Present (Yes/No)	Comments
	Significant Fish Habitat	Fisheries and Oceans Canada (FOC)	Yes	15 streams identified, detailed aquatic survey recommended
	Floodplain	in house	Yes	West and South Rivers
Marine Environment	Marine Habitat	FOC	No	
	Salt Marsh	FOC	Yes	South River estuary
Crown Lands	Provincial Parks	DNR	No	
	National Parks	in house	No	
	Federal Lands	in house	No	
	Park Reserves	DNR	No	
Native Lands	Indian Reserves	Indian and Northern Affairs (INA)	No	
	Native Land Claims	INA	No	no active claims
Agriculture	Agricultural Land	in house	Yes	throughout study area
	Fur Farms	Nova Scotia Department of Agriculture and Marketing (NSDAM)	Yes	1 fox farm north of existing Hwy. 104
Forestry	Intensive Forestry Management	DNR	No	
	Woodlot Management	DNR	Yes	private wood lots located throughout the study area
	Sugar Bush	DNR	No	

Category	Constraint	Organization/ Department Contacted	Constraint Present (Yes/No)	Comments
Land/Water Use	Urban/Rural, Proposed Development	Municipality of Antigonish	Yes	several residential developments proposed
	Airports and Navigational Aids	Transport Canada	No	
	Landfills/Waste Disposal Sites	Nova Scotia Department of the Environment (DOE)	Yes	Beech Hill Landfill Site
	Strip Mines	DNR	No	
	Underground Mines and Surface Facilities	DNR	No	
	Pits and Quarries	DNR	No	
	Advanced Mineral Exploration	DNR	Yes	mineral claims staked for kaolin clay and limestone
	Navigable Waters	FOC (Coast Guard)	Yes	West River, South River and possibly others.
	Aquaculture	NS Dept. of Fisheries	No	
	Recognized Views	in house	No	
Recreation	Canoe Route	Sport Nova Scotia	Unknown (no reply)	
	Cross Country Ski Trails	Sport Nova Scotia	Unknown (no reply)	
	Hiking Trails	Sport Nova Scotia	Unknown (no reply)	
	Misc. Recreation	Municipality of Antigonish	yes	ball fields, snowmobile trails
Water Supply	Surface Water Supply	DOE	No	

Category	Constraint	Organization/ Department Contacted	Constraint Present (Yes/No)	Comments
	Groundwater Supply	DOE, Municipality of Antigonish	Yes	three municipal wells in Lower South River, individual wells
	Developed Springs	Municipality of Antigonish	No	none identified
Utilities	Power Transmission Lines	Nova Scotia Power	Yes	transmission and distribution lines
	Municipal Services (water and sewer infrastructure)	Municipality of Antigonish	Yes	water and sewer lines, sewage treatment plant in Lower South River
	Telecommunications Towers	Industry Canada	Yes	1 tower
	Telephone Fibre Optic Cable	MT&T	Yes	buried/aerial copper and fibre optics lines
	Cable TV Fibre Optic Cable	No Contact	Unknown	
	Miscellaneous Pipelines	Municipality of Antigonish	No	
	Active Railway Lines	in house	No	
Archaeology/ Heritage	National Historic Sites	Canada Parks Service	No	
	Heritage Properties	Nova Scotia Department of Housing and Municipal Affairs	No	
	Archaeological Sites	NSM	No	no reported archaeological sites
	Old Burial Grounds/Cemeteries	NSM, local residents	Yes	two identified cemeteries

Category	Constraint	Organization/ Department Contacted	Constraint Present (Yes/No)	Comments
	Heritage Rivers	DNR	No	
	Fossil Sites	NSM	No	none indicated by

APPENDIX B - May 1998 Open House Summary

HIGHWAY 104 ANTIGONISH

PUBLIC CONSULTATION SUMMARY

May 30, 1998

Prepared By: Michael Croft, P.Eng
Date: Sept 14, 1998

INTRODUCTION

On Saturday May 30, 1998 a public consultation session was held from 11:00 am to 8:30 pm at the St Andrew Junior School in Antigonish to present the three alignment options for the proposed Highway 104 from Antigonish to Lower South River. The format of this consultation was a combination of the Department of Transportation and Public Works' (TPW) typical informal "open house" along with three formal presentations throughout the day. The purpose of the consultation was to present information and receive feedback from the public that could be used in the alignment selection process.

This public consultation was held jointly with the Atlantic Expressway Committee (AEC), a broad based local interest group. Approximately 20 TPW staff were in attendance throughout the day to answer questions. Interest groups representing the Red alignment (AEC) and the Blue alignment (Blue Route Realignment Committee (BRRC)) set up information tables promoting their preferred routing. It should be noted that throughout this report alignment options 1, 2, & 3 are often referred to as the Red, Blue, and Brown alignments respectively.

The Public Consultation was very well attended with over 700 names registered in the guest book. Average attendance at each of the three formal presentations is estimated at 200 to 250 people. Fact sheets describing the project, including a small plan showing the alignment options, were handed out. Everyone who attended was encouraged to fill out a questionnaire. Copies of the fact sheet, plan, and questionnaire are contained in Appendix "A".

BACKGROUND

TPW staff began working with the AEC in the fall of 1996 in an effort to identify an alignment, including access locations, that would be acceptable to both the local community and TPW. By April 1998 three feasible alignment options had been developed, however it was clear that agreement with the AEC on a preferred alignment and access locations was not attainable.

To enable continued progress on this project TPW and the AEC decided that the alignment options should be presented at a public consultation prior to making any decisions. To ensure the views of the AEC were heard it was agreed that presentations from both the AEC and TPW would be included as part of the consultation.

TPW was approached by the BRRC requesting permission to give a presentation at the public consultation. This group was allowed to hand out materials and set up displays. However, based on the working relationship established with the AEC over the previous 18 months, it was decided to deny the BRRC request for a formal presentation.

Efforts were made to contact all land owners directly affected by any of the alignment options (approximately 60) by phone or mail prior to the public consultation to inform them of the potential impacts to their property and the opportunity to provide input. In addition, information flyers (fact sheet and small plan) were sent to most homes and businesses in Antigonish County,

and advertisements were placed in the local paper (see Appendix "A").

PUBLIC CONSULTATION - GENERAL OBSERVATIONS

After the public consultation a debriefing was held with TPW staff in attendance to obtain general impressions and to discuss the consultation process. For the most part the following observations are based on TPW staff discussions with attendees;

- Most who discussed the project with TPW staff preferred either the Blue or Brown alignment options. This does not correspond with questionnaire results which show many people prefer the Red alignment. There was a perception among TPW staff that some Red alignment supporters perpetuated a voting mentality through a well organized and funded recruitment effort and PR campaign. This may partially explain the large discrepancy between observations at the public consultation, primarily in favor of the Blue and Brown alignment options, and questionnaire results which show substantial support for the Red alignment.

- The general mood during Q&A after the presentations was negative towards the Red alignment. Safety was a common concern. Those who spoke in favor of the Red alignment tended to be concerned about economic impacts to existing businesses.

- Due to the close association between TPW and AEC prior to the public consultation some people felt that TPW was biased towards the Red alignment and that a decision had already been made in favor of the Red alignment with 7 interchanges.

- Many viewed the AEC as primarily a lobby group for businesses in the Town of Antigonish and were upset that the AEC claimed to represent the majority of people in the Antigonish area.

- By allowing advocates and interest groups to participate in the public consultation (a first for TPW) it was felt that the public did not always receive a consistent message and that overall objectivity was sacrificed.

- The formal presentations appeared to be very well received and were useful in trying to provide a consistent message.

QUESTIONNAIRE RESULTS

The following is a summary of input provided on the questionnaires (see Appendix "A" for a copy). A total of **612** questionnaires were received either at the public consultation or after the consultation via mail, fax, or the Internet. The information obtained from the questionnaires was

tabulated and analyzed using FoxPro database software.

A total of 562 questionnaires were analyzed. Those substantially incomplete (less than three questions answered) or not containing the name and/or address of the person filling out the questionnaire were not included.

Q1.a) Which alignment option do you prefer?

Table 1.0 shows the number and percentage of people who preferred each of the alignment options. Five people indicated two preferred alignments, therefore the number of responses adds up to 567 and the percentages when totaled are slightly higher than 100%.

Table 1.0

	Number (#)	Percentage (%)
RED (Option1)	276	49.1%
BLUE (Option 2)	171	30.4%
BROWN (Option 3)	120	21.4%

To determine the sensitivity of property location on the preferred alignment, the results of this question were further analyzed for people with property (homes or businesses) located within the Town of Antigonish (205 questionnaires) and those with property outside the Town of Antigonish (357 questionnaires). The results (Table 2.0) indicate support for the Red alignment is substantially greater in the Town of Antigonish.

Table 2.0

	IN Town		OUT of Town	
RED	125	61.0%	151	42.3%
BLUE	49	23.9%	122	34.2%
BROWN	33	16.1%	87	24.4%

Q1.b) Please indicate the reasons for this preference.

To get an understanding of why people preferred each option, reasons for their preferences were requested. The top three reasons listed for preferring each alignment are listed in Table 3.0.

Table 3.0

		<u>Number (#)</u>	<u>Percentage (%)</u>
RED	1) Business Visibility	123	44.6%
	2) Least Economic Impact	111	40.2%
	3) Better Access Town/Hwy	38	13.8%
BLUE	1) Separates Local/Thru Traffic	63	36.8%
	2) Safety	62	36.3%
	3) Business Visibility	42	24.6%
BROWN	1) Safety	51	42.5%
	2) Cheaper to Build	46	38.3%
	3) Less disruption to homes	36	30.0%

Q2) On a Scale of 1 to 5, where 1 is totally unacceptable and 5 is very acceptable, rate each of the alignment options.

Table 4.0 provides an indication of the acceptability of each alignment option. A score of 4 or 5 was considered acceptable, a score of 3 no opinion, and a score of 1 or 2 unacceptable.

Table 4.0

	<u>RED</u>	<u>BLUE</u>	<u>BROWN</u>
Acceptable (4 or 5)	298 53.0%	205 36.5%	147 26.2%
No Opinion (3)	27 4.8%	88 15.7%	58 10.3%
Unacceptable (1 or 2)	212 37.7%	229 40.7%	312 55.5%
Did Not Answer	25 4.4%	40 7.1%	45 8.0%

Q3)What do you consider to be the pros and cons of each alignment option?

Table 5.0 lists the top five pros for each alignment and Table 6.0 the top five cons.

Table 5.0

	PROS	#	%
RED	1) Business Visibility	219	39.0%
	2) Least Economic Impact	72	12.8%
	3) Better Access Town/Hwy	62	11.0%
	4) Close to Town	48	8.5%
	5) Safety	23	4.1%
BLUE	1) Business Visibility	82	14.6%
	2) Separates Local/Thru Traffic	80	14.2%
	3) Safety	59	10.5%
	4) Close to Town	59	10.5%
	5) Fewer Traffic Delays/Construction	47	8.4%
BROWN	1) Cheaper to Build	113	20.1%
	2) Safety	78	13.9%
	3) Less disruption/homes	47	8.4%
	4) Separates Local/Thru Traffic	32	5.7%
	5) Less Noise	31	5.5%

Table 6.0

	CONS	#	%
RED	1) Unsafe	115	20.5%
	2) Traffic Delays/Construction	104	18.5%
	3) Loss Existing Hwy/Local Traffic	77	13.7%
	4) Noisy	61	10.9%
	5) Disruptive/Properties	39	6.9%
BLUE	1) Poor Visibility for Town	80	14.2%
	2) Negative Economic Impacts	72	12.8%
	3) Disruptive/Properties and Homes	71	12.6%
	4) Disruptive/Farmland	32	5.7%
	5) Unsafe	25	4.4%
BROWN	1) Negative Economic Impacts	166	29.5%
	2) Remote Location	111	19.8%
	3) Poor Visibility	72	12.8%
	4) Unacceptable	24	4.3%
	5) Disruptive/Farmland	19	3.4%

Q4) Assuming your preferred alignment option is chosen, circle the locations MAXIMUM OF FOUR where you would like interchanges constructed.

Table 7.0 shows the number of people who selected each of the potential interchange sites (regardless of preferred option). Table 8 shows the same information broken down by preferred alignment. 26 of the 562 questionnaires analyzed were not included because they

had more than 4 interchanges circled and didn't prioritize their selections.

Table 7.0

<u>Interchange Location</u>	<u>#</u>	<u>%</u>
Trunk 7	330	58.7%
Addington Forks Road	306	54.4%
Church Street	249	44.3%
Route 316	200	35.6%
Beech Hill Road	184	32.7%
Trunk 4, East of Antigonish	161	28.6%
Taylor Road	150	26.7%
Post Road	134	23.8%
Between Trunk 7 & Church Street	118	21.0%

Table 8.0

<u>RED (276 records)</u>	<u>#</u>	<u>%</u>
Church Street	185	67.0%
Trunk 7	181	65.6%
Addington Forks Road	122	44.2%
Route 316	101	36.6%
Post Road	86	31.2%
Trunk 4, East of Antigonish	77	27.9%
Beech Hill Road	72	26.1%
Between Trunk 7 & Church Street	40	14.5%
Taylor Road	37	13.4%
<u>BLUE (171 records)</u>	<u>#</u>	<u>%</u>
Addington Forks Road	102	59.6%
Beech Hill Road	73	42.7%
Trunk 7	70	40.9%
Between Trunk 7 & Church Street	69	40.4%
Route 316	67	39.2%
Taylor Road	57	33.3%
Trunk 4, East of Antigonish	57	33.3%
Church Street	44	25.7%
Post Road	33	19.3%
<u>BROWN (120 records)</u>	<u>#</u>	<u>%</u>
Addington Forks Road	82	68.3%
Trunk 7	79	65.8%
Taylor Road	56	46.7%
Beech Hill Road	39	32.5%
Route 316	32	26.7%
Trunk 4, East of Antigonish	27	22.5%
Church Street	20	16.7%
Post Road	15	12.5%
Between Trunk 7 & Church Street	9	7.5%

Q5.a) Will any of the potential alignment options directly or indirectly affect your property or business?

301 of the 562 (53.6%) questionnaires received indicated that one or more of the alignment options would impact their property or business.

Q5.b) If yes, how will it be affected?

Table 9.0 shows the top 5 impacts listed.

Table 9.0

How Business/Property is Affected	#	%
1) Business Visibility in Town	86	15.3%
2) Disruptive to Property	46	8.2%
3) Lose Property	44	7.8%
4) Noise	38	6.8%
5) Lower Property Value	12	2.1%

Q6.a) Did this “Open House” provide the information you needed or expected?

462 (82.2%) of the questionnaires received indicated that the public consultation provided the information expected.

Q6.b) If no, what additional information would have been of interest to you today?

Table 10.0 lists the top 5 additional information requirements given by respondents who answered no to question 6.a.

Table 10.0

Additional Information Required (Top 5)	#	%
1) Open House was One Sided (Supporting Option 1)	11	2.0%
2) More Information on Option 3	8	1.4%
3) Property Aquisition Costs	5	0.9%
4) More Information on Option 2	4	0.7%
5) Should Have Groups Supporting all Options	4	0.7%

Q7) Please add any additional comments you may have.

Table 11.0 lists some of the more frequent comments received.

Table 11.0

Additional Comments (Top 5)

	#	%
1) Safety is Priority	17	3.0%
2) Town Needs Highway to Survive	10	1.8%
3) Want a Quick Decision	9	1.6%
4) Need Option 1 for Adequate Visibility	9	1.6%
5) Do What is Best for Entire Community	8	1.4%

CONCLUSIONS

Based on the evaluation of questionnaires and general observations at the public consultation it is apparent that the local community is divided on the issue of which alignment option is best. The Red alignment was preferred by 49.1% of the respondents, followed by the Blue alignment at 30.4% and the Brown alignment at 21.4%. When asked about the acceptability of each option, 37.7% of respondents indicated that the Red alignment was unacceptable, compared to 40.7% for the Blue and 55.5% for the Brown.

Preference for the Red alignment was based almost entirely on economic impacts to businesses located near the existing Highway 104. Those who preferred the Blue option listed safety, separation of through and local traffic (ie keeping the existing Highway 104 for local traffic), and good access and visibility as the main reasons for their preference. The Brown alignment was favored primarily based on safety, reduced construction costs, and reduced disruption to residential areas.

A more detailed evaluation of the questionnaires revealed a bias in preferred alignment based on the location of the respondent's home or property. People within the Town of Antigonish showed greatest support for the Red Alignment. A substantial number of Red alignment supporters had business interests within the Town. Support for the Red alignment declined based on distance away from the Town.

Interchange location preferences were weighted towards the Town of Antigonish where the majority of people who submitted questionnaires lived or owned properties. Regardless of alignment preference, Trunk 7 and Addington Forks were favored interchange locations, while Church Street was a strongly supported location for the Red alignment. In the Lower South River area support for an interchange was slightly higher at Rte 316 than Taylor Road.

One perplexing aspect of the public consultation was the relatively high percentage of questionnaires indicating Red as the preferred alignment despite an apparent lack of support for the Red alignment based on comments received by staff and the general mood at the Q&A period following the presentations. The most plausible explanation for this discrepancy is that many supporters of the Red alignment attended the public consultation not to obtain information and discuss the project with TPW staff, but with the singular purpose of "voting" for the Red alignment.

The public consultation was a success in that it gave the community ample opportunity to voice concerns and discuss the project with TPW staff. What it did not provide is a clear direction from the community with respect to a preferred alignment option. Although the Red alignment option was preferred by just under 50% of respondents, almost 40% of the respondents indicated the Red alignment was either unacceptable or very unacceptable. Regardless of the alignment selected, close to 50% of the community will likely object. The two major areas of concern for most were economic impacts and overall safety for motorists and residents. The option that can best address these two concerns will probably receive widest approval from the community.