



Provincial Asphalt Plant Operation

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Table of Contents

Executive Summary..... 3

Introduction to Proposal..... 4

Background..... 5

Analysis and Discussion..... 8

Risk Assessment..... 15

Recommendations..... 17

Recommended Implementation..... 17

Appendices

Executive Summary

Government has committed to increase resurfacing of secondary (non-100 series) roads by 50%. In fact, there has been a significant shortfall in paving secondary roads in Nova Scotia over the last 5 years even though budgets have increased over this period.

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advised

The Province currently has 14,000 kilometres of paved roads to maintain. In order to maintain the existing road system, 680 kilometres should be repaved each year. However, over the past 5 years, an average of only 500 kilometres have been repaved each year, resulting in a short fall of 180 kilometres (26%) per year.

One of the reasons for the shortfall is the lack of competitive pricing for repaving projects in some parts of the province. In the counties where competitive bidding occurs, 67% of winning tender bids are within 10% of estimated costs. Where competition is limited, only 50% of winning bids are within 10% of estimates, and average 9.7% above the provincial average. Because more dollars are spent on fewer kilometres of paving in non-competitive areas, the paving deficit continues to grow. TIR does not anticipate that paving budgets will increase in the near future and consequently believes that the maintenance of paved secondary roads is not sustainable and the infrastructure deficit will continue to grow.

This proposal presents an opportunity to reduce that infrastructure deficit by authorizing Transportation and Infrastructure Renewal (TIR) to set up a mobile asphalt plant utilizing existing budget allocations. In the first year, this will result in slightly reduced repaving of secondary roads. However, at current paving rates (both cost and volumes), the one-time start-up cost of \$6 million will be recovered within 5 years, and the annual cost of approximately \$10 million will result in annual net TCA savings of \$1.3 million. Savings are anticipated because this publicly owned venture will provide competition in areas of the Province with limited competition. This will reduce the number of above-average cost contracts awarded. This would be a policy shift from existing practice and is a return to the public-private competition model used by previous governments to ensure fair and competitive pricing throughout the Province.

In summary, the proposed asphalt paving plant would improve the sustainability of the paved road network and improve bidding competition. It could provide savings of about \$1.3 million of TCA each year and/or allow additional kilometres of paving. Any increased paving will allow some existing funds to be redirected to other maintenance activities by reducing the need to patch badly deteriorated paved secondary roads. The proposal will also free up capacity for more contractors to bid on more work, as well as provide TIR with in-house expertise in hot mix asphalt production and placement.

Introduction to proposal

The tendering process is intended to provide competitive pricing. However, Transportation and Infrastructure Renewal (TIR) is not receiving competitive bids for asphalt projects in some areas of the province (see table on page 8). Where tendering does not provide a competitive bidding environment, TIR proposes taking steps to establish competition and ensure tax payer's dollars are spent wisely. TIR is concerned that due to high tender prices, asphalt repaving work may be cancelled or may cost more money than estimated. This could result in reduced kilometres repaved, further deterioration of the roadways and costly repairs in the future.

TIR proposes a mobile paving plant operation which will work in areas of limited competition to produce a competitively priced asphalt product. TIR does not intend to do work in areas of the Province where there is already competitive bidding (typically central and northern Nova Scotia, see table on page 8). To a certain extent the establishment of a mobile asphalt plant is an insurance policy to ensure fair pricing.

Potential savings of \$1.3 million can be achieved if competitive bidding occurs province wide. TIR can produce hot mix asphalt for \$45.47 per tonne, which is a savings of 16.3% from the average price of \$54.31 in non-competitive counties.

It is TIR's intent to only conduct repaving of trunks, routes and local roads in areas where there is lack of competitive bidding. All other incidental work involved with this repaving, such as crushing asphalt aggregate, replacing culverts, crushing and application of shoulder gravel, ditching, etc, could either be tendered (current practice) or carried out with Department forces.

A Provincial asphalt plant provides benefits beyond competitive bidding. It also includes better utilization of TIR winter equipment. Many tandem trucks and loaders currently sit idle in the summer, but the asphalt plant would provide year round work for that equipment, offsetting many of the fixed costs. An asphalt plant's activities are much easier on the equipment than hauling salt and plowing snow so there would be minimal impacts on the useful life of the equipment.

The total cost to purchase and outfit an asphalt plant operation is an estimated \$6.0 million. This would be funded from the existing capital program allotment. It will take approximately 5 years to recover the \$6.0 million capital investment to set up an asphalt plant operation. (See Projected Savings tables, pages 12-13). In order to be operational for the 2012 construction season, TIR would require approval to proceed by mid 2010.

The asphalt plant would require approximately \$10 million of TCA funding each year for repaving. This would also be funded from the existing capital program allotment. TIR's goal is to repave an additional 90 - 125 kilometres of secondary roads per year using the pavement preservation strategy of single lift overlay or through simple double overlay projects.

Background

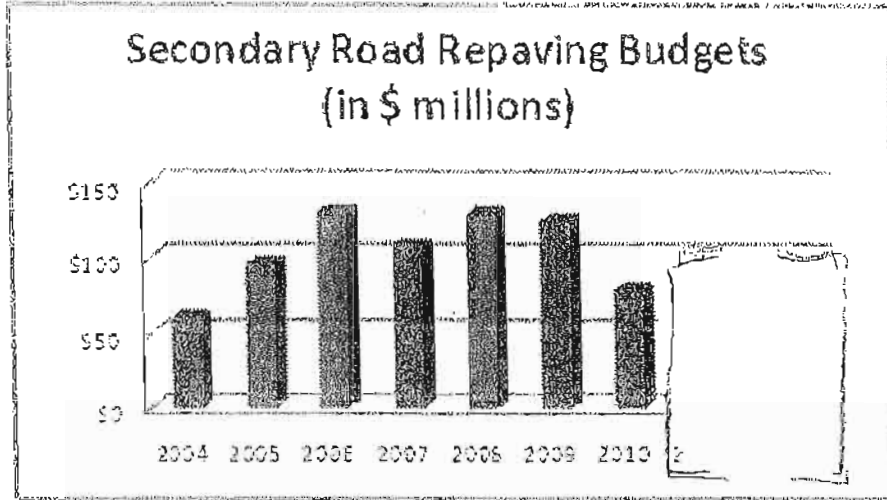
Over the past 10 - 15 years, a number of Nova Scotian paving contractors have either shut down or have been purchased by competitors (eg. [redacted] Enterprises, Nova Paving, etc). This has resulted in a reduced number of contractors currently bidding on repaving work for TIR (see list, below). Competition is healthy in many areas of the province but in eastern and western Nova Scotia, there are a limited number of bidders for repaving contracts. Many contractors are unable to bid on projects in those areas as they do not have access to quarries to supply the high quality aggregates required to manufacture the hot mix asphalt. Consequently, prices on repaving contracts in these areas run approximately 9.7% higher than other parts of the province (see table on page 8).

S 20(G)

| Contractor | Location | Counties Where Work Bid |
|------------------------------------|-------------|--|
| Aberdeen Paving Limited | Yarmouth | Yarmouth, Shelburne, Annapolis and Digby |
| Basin Contracting Limited | Enfield | Halifax, Hants and Colchester |
| Chapman Bros. Construction Limited | Souris, PEI | Cumberland, Colchester, Halifax, Hants, Lunenburg, Kings, Pictou, Antigonish, Guysborough and Richmond |
| Cumberland Paving Limited | Amherst | Cumberland, Colchester, Pictou, Hants, Inverness |
| Dexter Construction Limited | Bedford | All Counties |
| England Paving | Antigonish | Antigonish, Halifax & Lunenburg |
| Highland Paving (owned by Dexter) | Kentville | Annapolis & Kings |
| Miller Paving Limited | Moncton, NB | Cumberland |
| Municipal Ready Mix Ltd | Sydney | Cape Breton & Victoria |
| Ocean Contractors Ltd | Dartmouth | Halifax |
| Ocean Paving Ltd | Port Hawk | Richmond & Guysborough |
| S.W. Weeks | New Glasgow | Colchester, Pictou, Halifax, Hants, Antigonish, Guysborough, Richmond & Inverness |

The Department previously owned two asphalt paving plants which repaved trunks, routes and local roads in areas of the province where contractors were not interested in carrying out work or where there was limited competition. These plants were disbanded in 1992 due to government policy at that time. These plants provided the Department with the opportunity to experiment with various asphalt mixes, reduce maintenance costs on local roads, determine the market price to produce hot mix asphalt and resulted in competitive pricing for asphalt repaving.

In the 5 years from 2004 to 2008, TIR had an average capital repaving budget (excluding 100 Series roads) of \$105 million which translates into approximately 400 kilometres of repaving of secondary roads per year. This budget is expected to decline over the next few years as federal Government infrastructure and economic stimulus programs wind down.



S. 13(i)
Budget Future
Predictions

Repaving work is awarded to the lowest bid through a tendering process. However, there are times when the lowest bid exceeds TIR's estimates and thus uses more capital funds than expected, which results in fewer kilometres of roads being repaved. In extreme cases work has been cancelled because the bid prices came in too high to justify the work and the projects were retendered in subsequent years or cancelled outright.

The 2009 capital budget for paving/repaving was \$125 million with 50% of this being awarded to one contractor. This contractor has the largest capacity, with more and larger plants than their competitors. Late in the season bid prices tend to increase because there are fewer contractors with capacity to do the work and because of the shorter work day in late Summer. This benefits the large contractor as they have the most capacity and access to aggregate sources, and thus tend to be the successful bidder on a larger portion of this more expensive work.

Asphalt plants can be categorized as 1) permanent / stationary (these do not move and only bid work in the local area), and 2) portable (plants that move to various parts of the Province where the contractor has access to aggregate to produce hot mix asphalt). Currently there are twelve asphalt contractors (2 from out of Province) bidding on asphalt projects in Nova Scotia. Five are portable and have one or more plants. Seven are permanent, more generally with only one plant. Of the twelve contractors only one has access to aggregate throughout the province [] which enables them to bid on projects in all areas of the province.

S 20(i)

Location is important to the economic viability of producing hot mix asphalt. Not only is there a cost to transport the finished product to the project site, but there is a significant cost to transport raw materials (stone, sand and liquid asphalt) to the asphalt plant. All

contractors must pay to transport liquid asphalt from their suppliers, but contractors that operate plants at or very near their sources of aggregate have an advantage in material transportation costs. Contractors owning aggregate quarries have an advantage in controlling production costs in addition to avoiding the cost of hauling aggregate to their asphalt plant. For example, an increase in distance from 25 kilometres to 50 kilometres for a 20 tonne load would increase trucking costs \$50.60 for that load.

The majority of permanent asphalt contractors possess their own aggregate sources while portable contractors either own or lease from private pit owners and only one contractor has access to aggregates province wide. Most contractors know where their competitors obtain aggregates, what they pay for materials, and what their transportation costs are. Knowing this information sometimes leads to contractors not bidding if they feel they cannot be competitive.

Based on historic bid prices there has been limited competitive bidding in parts of western and eastern Nova Scotia, in particular: Queens, Shelburne, Yarmouth, Digby, Annapolis, Kings, Guysborough, Richmond, Victoria and Inverness Counties. This is primarily related to contractors not having access to aggregate sources to produce hot mix asphalt. The cost to purchase land and develop a quarry can be several hundred thousand dollars with no guarantee of being the successful bidder on any contracts. The degree of risk involved results in many contractors staying in their existing spheres of operation.

Analysis and Discussion

The following table shows the 2008 and 2009 averaged prices for hot mix asphalt in each county. The top section of the table shows that the 8 counties with competitive bidding had an average hot mix asphalt price of \$49.02 per tonne. The bottom half shows that the 10 counties with limited competition and limited aggregate sources had an average price of \$54.31, which was 9.7% more than in competitive counties.

8 Counties with competitive prices

| County | Tonnes | Price | Tonnes x price |
|----------------|---------|-------|-------------------|
| Antigonish | 29,527 | 54.77 | 1,617,194 |
| Cape Breton | 33,875 | 44.29 | 1,500,324 |
| Colchester | 68,075 | 45.85 | 3,121,239 |
| Cumberland | 39,223 | 49.42 | 1,938,401 |
| Halifax | 82,514 | 53.88 | 4,445,854 |
| Hants | 43,258 | 50.39 | 2,179,771 |
| Lunenburg | 64,850 | 48.56 | 3,149,116 |
| Pictou | 32,750 | 41.65 | 1,364,038 |
| All 8 counties | 394,072 | 49.02 | 19,315,935* |

10 Counties with limited competition

| County | Tonnes | Price | Tonnes x price | Average competitive price | Tonnes x competitive price | Price variance |
|--------------------|---------|-------|-------------------|---------------------------------|----------------------------------|-------------------|
| Annapolis | 37,175 | 50.98 | 1,895,026 | | | |
| Digby | 2,600 | 79.20 | 205,920 | | | |
| Guysborough | 13,070 | 56.05 | 732,586 | | | |
| Inverness | 57,908 | 52.66 | 3,049,417 | | | |
| Kings | 45,213 | 55.05 | 2,488,928 | | | |
| Queens | 8,650 | 54.82 | 474,183 | | | |
| Richmond | 30,843 | 54.19 | 1,671,439 | | | |
| Shelburne | 7,300 | 57.67 | 420,975 | | | |
| Victoria | 12,957 | 56.58 | 733,158 | | | |
| Yarmouth | 4,225 | 64.50 | 272,513 | | | |
| All 10 counties | 219,941 | 54.31 | 11,944,145* | 49.02 | 10,781,027 | 1,163,119 9.7% |

* Not equal to tonnes x price due to rounding of price.

In 2008 there were 6 contracts where only 1 bid was received as follows: (See Appendix C)

- Western District - 2 contracts, Kings & Lunenburg Counties
- Eastern District - 2 contracts, Antigonish & Victoria Counties
- Central District - 2 contracts, Halifax & Hants Counties

In 2009 there were 13 contracts where only 1 bid was received as follows: (See Appendix D)

- Western District - 3 contracts, Digby, Kings & Yarmouth Counties
- Eastern District - 5 contracts, Cape Breton (2), Inverness (2) & Victoria (1) Counties
- Central District - 5 contracts, Halifax (3) & Hants (2) Counties

A variety of factors contribute to the number of single bid contracts but the most likely reasons appear to be lack of aggregate sources, purchase of smaller competitors by their larger competitors and limited capacity within the industry. The trend towards increasing numbers of single bid contracts is disturbing as it increasingly underlines the pricing power available to the sole bidder in these areas. Typically, areas which have single bid contracts and have limited numbers of contractors have higher pricing.

Anticipated yearly costs or savings after full implementation

Based on the average unit bid prices per county for hot mix asphalt as shown in the tables on pages 12 -13, TIR could generate a potential savings of approximately \$1.5 million based on 2008 and 2009 data or \$1.3 million based on pro-rating to 2012 repaving budget if TIR were to produce its own hot mix asphalt in counties with limited competition. The table on page 13 shows potential "halo effect" savings of \$2.5 million (pro-rated to 2012) if bids across the province decrease to TIR's cost for producing hot mix asphalt.

A budget of \$10 million will be allocated to the hot mix asphalt paving plant each year for the repaving of 90 - 125 kilometres of secondary roads, using the pavement preservation strategy of single lift overlays or relatively straightforward double overlay projects. The preparation work associated with these projects (asphalt cement, tack coat, crushing asphalt aggregate, replacing culverts, crushing and application of shoulder gravel, ditching, etc.) could either be tendered (current practice) or carried out with Department forces.

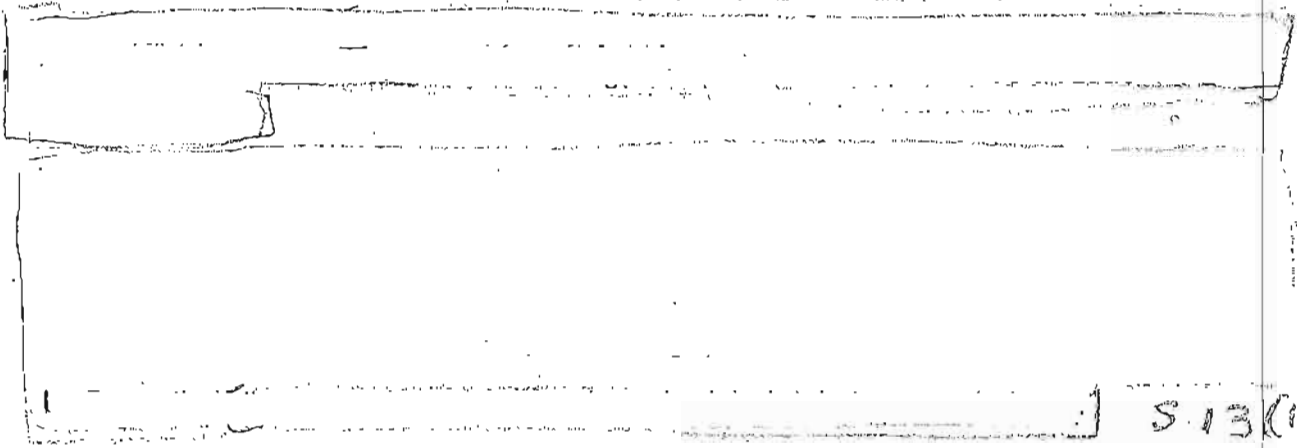
Anticipated or projected upfront investment required

Re-allocate \$6 million of existing TCA funds for asphalt plant and associated paving equipment.

Anticipated FTE implications

| |
|--|
| |
|--|

S.17(1)(a)(d)
 - Financial Management
 - Personnel Management
 - Operations



Implementation

Implementation would start in 2010 if approval is received from Government to proceed. This would include:

- hiring of a Paving Superintendent
- retaining a consultant to provide guidance throughout the process
- obtaining land from Department of Natural resources to develop pits and quarries
- tendering for asphalt plant and related paving equipment
- tendering for crushing of asphalt aggregate and shoulder gravel
- tendering for asphalt products (asphalt binder and tack coat)
- staff training (included in tender for asphalt plant)

Projected full implementation and operation would be in June 2012

Stakeholders/clients expected to be significantly affected

The 2011 capital program would be reduced by the \$6 million required to purchase the asphalt plant and equipment. This will affect Nova Scotia Road Builders Association (NSRBA) members by reducing the 2011 capital repaving budget by \$6 million, which will reduce the number of kilometres to be repaved.

The \$10 million of funding required each year for this operation would be funded from the yearly capital program which will reduce NSRBA's annual repaving work by approximately 88,000 tonnes or 90 to 125 kilometres.

The NSRBA will not support the proposal. They will see this as the government infringing on their work. The Association strongly believes that its members can lay hot mix asphalt at less cost than a publicly owned and operated plant. This may or may not be true but based on the analysis to buy and operate a TIR plant and the analysis done on bid pricing it has not manifested itself in the public's interest to date.

The Truckers Association of Nova Scotia (TANS) will not support the proposal as TIR will perform all the trucking (work done by Department forces is not subject to the "80/20" rule which requires that 80% of the trucks on a contractors project come from the local area and be paid at the Department set rate). TANS will see this as work being taken away from them as they will not get the opportunity to haul approximately 88,000 tonnes of hot mix asphalt.

However, approximately \$7.3 million of the \$10 million for the asphalt plant operation each year will continue to flow to the private sector. That amount is the cost of asphalt cement, asphalt aggregate, shoulder gravel and other preparatory work which will continue to be purchased from private sector suppliers. As the TIR plant will only be involved in the mixing and laying of the asphalt concrete, only \$2.7 million of the \$10 million taken from the capital budget will be a reduction of the amount of work available to the local road building industry.

If savings are reinvested, beginning in 2012 the citizens of Nova Scotia will receive more kilometres of repaving in areas of limited competition through the direct and indirect savings generated by the TIR plant and crew.

Anticipated or projected major risks/implications

The NSRBA will not support Government purchasing an asphalt plant and associated paving equipment as they would see this as taking work from their industry.

TANS will not support the proposal as they would see this as taking work from the trucking industry.

Obtaining qualified personnel to fill the required positions may be difficult.

Obtaining aggregate sources could be challenging. It may be difficult to locate viable private sector sources, however current policy allows TIR to request land transfers from the Department of Natural Resources. Developing those sites as quarries may be controversial from a public perspective. Generally speaking, the development of quarries generates some local opposition (depending on the proximity to homes, etc.) and can be expected to require some public consultation and communication.

The time frame for the associated costs and benefits to appear

The associated costs will be immediate in the 2011 fiscal year, as \$6 million will be required from the capital budget to purchase an asphalt plant and related paving equipment.

Benefits

In the following tables, the average cost per tonne of hot mix asphalt in 2008 and 2009 is compared with estimated cost in 2012. The first table presents a conservative estimate of \$1.3 million in annual savings.

The first line shows savings based on TIR's ability to produce 88,000 tonnes of hot mix asphalt for use in areas of the Province with limited competition. The next line shows additional savings based on the assumption that contractor's prices in other areas of limited competition will drop to the same level as in competitive areas. The estimated savings of \$1.5 million is then pro-rated to \$1.3 million to take into account the smaller paving budget projected for 2012.

| Area of Province | Service provider | Tonnes | Average 2008 2009 price | Cost in 2008/09 | Estimated price * | Estimated cost | Estimated savings (2008/09 less estimated cost) |
|--------------------------------------|------------------|---------|-------------------------|-----------------|-------------------------|----------------|---|
| Limited competition (in 10 counties) | TIR | 88,000 | 54.31 | 4,779,280 | 45.47 | 4,001,360 | 777,920 |
| Limited competition (in 10 counties) | Contractor | 131,941 | 54.31 | 7,165,716 | 49.02 | 6,467,748 | 697,968 |
| 8 Competitive counties | Contractor | 394,070 | 49.02 | 19,317,311 | 49.02 | 19,317,311 | 0 |
| | | 614,011 | 50.91 | 31,262,307 | | 29,786,419 | 1,475,888 |
| | | | | | Prorated to 2012 | | 1,255,679 |

* Notes

- \$45.47 is the calculated price for TIR to produce hot mix asphalt (see Appendix A)
- \$49.02 is average unit price for hot mix asphalt in competitive counties of the Province (see table p.8)
- \$54.31 is average unit price for hot mix asphalt in non-competitive counties of the Province (see table p.8)

S. 13 (1) Add \$1.3 million
 Future budget projections

In the following table, the best-case scenario shows estimated savings based on the assumption that the Government's asphalt plant will drive the price of hot mix asphalt in all parts of the Province to TIR's rate. As above, the estimated savings of \$3.3 million are prorated to \$2.5 million because the budget in 2012 is projected to be only 68% of the 2008 and 2009 budgets.

| Area of Province | Service provider | Tonnes | Average | | Cost in 2008/09 | Estimated price* | Estimated cost | Estimated savings (2008/09 less estimated cost) |
|--------------------------------------|------------------|---------|---------|-------|-------------------------|------------------|----------------|---|
| | | | 2008 | 2009 | | | | |
| Limited competition (in 10 counties) | TIR | 88,000 | 54.31 | 49.02 | 4,779,280 | 45.47 | 4,001,360 | 777,920 |
| Limited competition (in 10 counties) | Contractor | 131,941 | 54.31 | 49.02 | 7,165,716 | 45.47 | 5,999,357 | 1,166,358 |
| 8 Competitive counties | Contractor | 394,070 | 50.91 | 49.02 | 19,317,311 | 45.47 | 17,918,363 | 1,398,949 |
| | | 614,011 | | | 31,262,307 | | 27,919,080 | 3,343,227 |
| | | | | | Prorated to 2012 | | | 2,533,873 |

* Notes

- \$45.47 is the calculated price for TIR to produce hot mix asphalt (see Appendix A)
- \$49.02 is average unit price for hot mix asphalt in competitive counties of the Province (see table p.8)
- \$54.31 is average unit price for hot mix asphalt in non-competitive counties of the Province (see table p.8)

5.13(7)

Other benefits are as follows:

- produce and place hot mix asphalt at or near market prices in areas where competitive bidding is limited
- will free up capacity for private contractors to bid more work in other areas (helping to provide downward pricing pressure)
- will see an increase in bidders on repaving projects in other areas of the province
- will provide TIR with in-house expertise in hot mix asphalt production and placement
- will supply hot mix asphalt to local TIR maintenance forces located near the TIR plant for patching at a reduced cost.

Interconnections/Implications with/for other projects, initiatives, Departments or stakeholder/clients

TIR is also putting forward a proposal to establish a chip seal crew. Both the chip seal crew and asphalt plant operation are strategic investments in Nova Scotia's infrastructure. Together they would result in \$4.9 million of work being taken from the local road building industry. Both proposals require extensive work for contractors (crushing, materials, preparatory work, etc). Of \$18 million in work for both the chip seal and the asphalt plant operations, the reduction in the amount of work available to the local industry is only \$4.9 million. Both of these proposals mimic TIR's centreline painting, an existing model of public/private competition which has served TIR well over the past fifteen years.

The paving and chip seal operations will allow TIR to experiment with different hot mix asphalt mixes and application rates to determine the optimum criteria for Nova Scotia roads. Tendered contracts are specification driven and make it more difficult to try test areas for new mixes and technologies.

TIR is currently implementing a pavement management program for 100 series highways and eventually for trunks and route type roadways. Having in-house paving and chip seal capabilities will result in cost effective work across the province for prioritized projects.

Government has committed to increase resurfacing for secondary roads by 50%. TIR is currently disadvantaged in some areas with a limited number of bidders on some tenders. Being able to provide cost effective paving and chip sealing across Nova Scotia will enable government to reach their commitment.

TIR will be requesting the use of Department of Natural Resources properties where they provide suitable aggregates and will work with DNR to evaluate properties in the relevant areas of the province.

Any stakeholder/client or public consultation and the associated findings

None have been done.

| | | | | |
|---------------|--|--------|--------|---|
| Business Plan | Lack of in-house skills for asphalt plant operation. | High | Medium | There are a few people currently on staff who were involved in the previous asphalt plant operation but they are reaching retirement age. These people can be used to mentor new staff and if they retire, hired on a part time basis until new crew is fully operational. |
| Business Plan | Inability to recruit and maintain specialized workers. | Medium | High | Promote the benefits of working for TIR (fringe benefits, OT, training). Offer the option of seasonal or year round work to attract the right individuals. |
| Business Plan | Availability of future funding. | Medium | Low | Government has committed to increase resurfacing for secondary roads by 50%. This will be a challenge under existing budgets and current hot mix asphalt tender prices in some areas of the province. The paving plant operation will assist government in meeting this commitment with market value hot mix asphalt prices. TIR will take money from capital budget to pay for asphalt plant and equipment. |
| Business Plan | Inability to obtain viable aggregate sources through Dept Natural Resources or private parties | Low | High | TIR will test all sources of material to ensure aggregate can produce a quality hot mix asphalt. |
| Business Plan | CUPE Union | Low | Low | |

S.17(1)(b)(c)(e)
 - Financial
 - Personnel management
 - negotiations

Recommendations

TIR can perform hot mix asphalt repaving at a rate which is approximately 16.3% lower than bid prices in areas of the province which suffer from lack of competition.

The asphalt plant operation is designed to have a group of core specialized employees, with a significant number of employees hired from the local CUPE work force in the area where the work is being performed. This provides employment to the rural areas and reduces lodging and travel expenses. Existing department equipment (tandems, loaders, graders, etc) will be utilized from the local areas, increasing the utilization of Department equipment.

Re-allocate \$6 million of existing TCA funding to purchase a mobile asphalt plant, and use \$10 million of TCA funds per year to operate it. Reinvest savings into repaving budget.

Recommended Implementation

TIR would identify suitable aggregate sources in areas of limited competitive bidding for hot mix asphalt through aggregate sampling and testing. After the sources have been identified Natural Resources would be contacted to transfer land in the summer of 2011. Pits and quarries will be developed in fall/winter 2011.

An engineering consultant with expertise in aggregates and asphalt plants would be retained to provide guidance throughout the process.

The crew would be set up under the same model TIR has for provincial field crews with a few modifications. The asphalt plant crew is large enough to justify self sufficiency in technical expertise, supervision and clerical support. The hiring of superintendent would take place in the winter of 2011, other core staff hired in the winter of 2012.

A small advisory group would be assembled with representatives from Construction Services, Miller Lake mechanical branch, senior management, the retained consultant and the Superintendent to identify equipment requirements and prepare tenders. The asphalt plant and paving equipment would be specified and tendered in the fall of 2011. During the winter of 2012, the remaining core personnel would be recruited. Simultaneously, a program for the paving plant operation would be developed and tenders or standing offers for crushing aggregate and the supply of asphalt binder, tack coat would be issued.

Who would be responsible to do it?

The small advisory group developed from department personal would be responsible to procure the equipment required and staff the crew. Once core staff is in place, the superintendent would be responsible for the overall operation of the crew.

What is the associated time frame?

Procurement of equipment in the fall of 2011 and winter of 2012. The hiring of superintendent would take place in the summer of 2011, other core staff hired in the winter of 2012. Tenders or standing offers for materials would be issued in the winter of 2012. Training would occur in the spring of 2012 and the operation would start in the summer of 2012.

What is the roll out strategy?

Government representatives, union officials, NSRBA and TANS would have to be briefed on the program. A strong communication plan would have to be developed.

What internal resources would be utilized to make this happen and if so what else (if anything) would have to wait until completion of the new work, if a decision was made to proceed via additional resources what would be required?

The Advisory Committee would be used to develop the project charter, the implementation and roll out.

ASPHALT PLANT COSTS

Capital costs to purchase asphalt plant & paving equipment

9/Jun/10

6,000,000

| Operational Costs Staff | Classification | Cost/Year* | Portion of Year | Cost, \$ |
|-------------------------|----------------|------------|------------------------------------|----------------|
| Manager | MCP 23 | 85,000 | | |
| Superintendent | TE 27 | 57,800 | 1 | --- |
| Elec Tech/Plant Op | TE 22 | 54,000 | 1 | 57,800 |
| Plant Operator | TE 22 | 54,000 | 1 | 54,000 |
| Loader Operator | 18.12 | 54,000 | 1 | 54,000 |
| Plant Labourer | 17.63 | 42,400 | 0.5 | 21,200 |
| Spreader Operator | 19.40 | 41,254 | 0.5 | 20,627 |
| 2 Rakers | 17.63 | 45,396 | 0.5 | 22,698 |
| 1 Shovel | 17.63 | 41,254 | 0.5 (2) | 41,254 |
| 3 Roller Operators | 18.12 | 41,254 | 0.5 | 20,627 |
| Road Laborer | 17.63 | 42,400 | 0.5 (3) | 63,600 |
| Mobile Mechanic | 23.36 | 41,254 | 0.5 | 20,627 |
| Distributor Operator | 18.12 | 54,662 | 0.5 | 27,331 |
| 3 Traffic Control | 16.39 | 42,400 | 0.5 | 21,200 |
| | | 38,352 | 0.5 (3) | 57,528 |
| | | | Salary | 482,492 |
| | | | Overtime (20%) | 96,498 |
| | | | Benefits (salary x 40%) | 192,997 |
| | | | Total Salary & Benefits | 771,987 |

Total \$ lost to

771,987.20

Assumptions - Operating Costs

Hours:

*CUPE staff assume 9 hour regular when plant not operating plus 2 hours at 1.5 per day when plant operating
1 May - 31 Oct = 26 weeks

Month of May will be preparing plant for operation = 20 days x 9 h = 180 h

1 June - 31 Oct - paving season, assume will lose 1 day per week due to bad weather and break downs
equals 88 paving days x 12 h/day = 1056 h + 22 days x 9 h = 198 h for Total hours = 1254

1 May - 31 Oct = 1434 h

Lodging:

CUPE plus NSGEU staff ^{1188*} S-17(1)(b)(c)(d)
staff at \$66/day = \$1188.00

\$1188.00 * 22 days/month * 6 months = \$156,816.00

| | | |
|---------|---------|------------|
| Lodging | 156,816 | 156,816.00 |
|---------|---------|------------|

Paving Equipment:

| | | |
|--------------------|--|---------|
| 1 Tack Distributor | \$65/h x 400 h | 26,000 |
| 3 Rollers | \$40/h x 3 x 1,056 h | 126,720 |
| 1 Loader | \$76.75/h x 1,056 h | 81,048 |
| 2 Floats | \$65.00/h x 2 x 200 h | 26,000 |
| Asphalt Plant | \$4,500,000 x 20% amortization average over 15 years | 307,292 |
| 1-3/4 t truck | \$22/h x 1,254 h | 27,588 |
| 2 - 1/2 t trucks | \$17/h x 2 x 1,254 h | 42,636 |
| Asphalt Spreader | \$97/h x 1,056 h | 102,432 |
| Office Trailer | \$37/h x 1,434 h | 53,058 |

| | | |
|--|---------|---------|
| Operational Costs for Asphalt Plant & Paving Equipment | 792,774 | 792,774 |
|--|---------|---------|

Daily Tonnage

1000 t per day x 4 days per week = 4000 t per week

22 week paving season = 88 days

88 days x 1000 t

88,000 t

Cost Per Tonne to Produce Asphalt Concrete

| | | |
|-----------------------------------|------------------|------------------|
| Labour | 771,987 | |
| Lodging | 156,816 | |
| Operational Costs | 792,774 | |
| Total | 1,721,577 | 1.721,577 |
| Price per tonne based on 88,000 t | | 19.56 |

Other Related Costs per Tonne

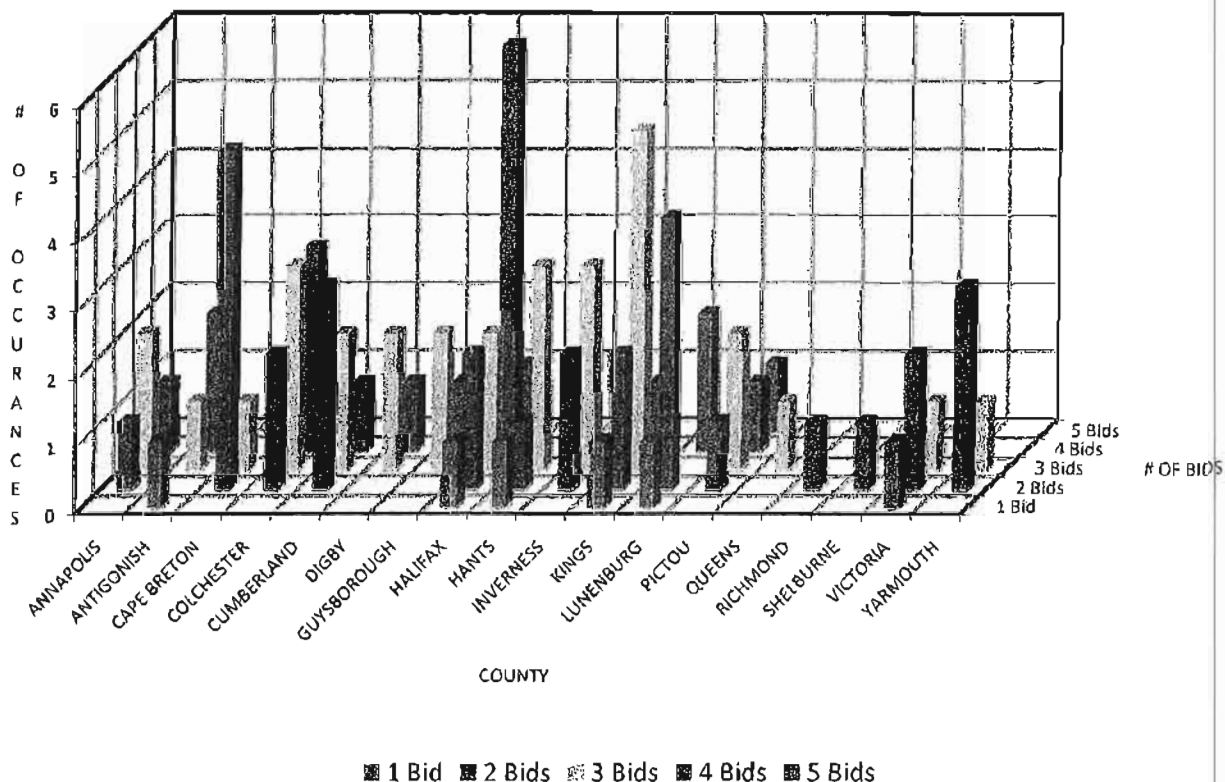
| | | |
|----------------------------|-------|--------|
| Asphalt Plant Maintenance | 1.00 | 88000 |
| Trucking | 5.61 | 493680 |
| Fuel Costs - Asphalt Plant | 1.80 | 158400 |
| Aggregate Costs | 15.00 | 220000 |
| | 2.50 | |

25.91



BID COMPETITION IN NOVA SCOTIA - 2008 CONSTRUCTION YEAR - ASPHALT PAVING CONTRACTS ONLY

| | County | Contracts with Bids by Occurance | | | | | Total Contracts | Total Bids |
|----|---------------|----------------------------------|-----------|-----------|-----------|----------|-----------------|------------|
| | | 1 | 2 | 3 | 4 | 5+ | | |
| 1 | ANNAPOLIS | | 1 | 2 | 1 | | 4 | 12 |
| 2 | ANTIGONISH | 1 | | 1 | 2 | | 4 | 12 |
| 3 | CAPE BRETON | | 5 | 1 | | | 6 | 13 |
| 4 | COLCHESTER | | 2 | 3 | 3 | | 8 | 25 |
| 5 | CUMBERLAND | | 3 | 2 | 1 | | 6 | 16 |
| 6 | DIGBY | | | 2 | 1 | | 3 | 10 |
| 7 | GUYSBOROUGH | | | 2 | 1 | | 3 | 10 |
| 8 | HALIFAX | 1 | 2 | 2 | 6 | 1 | 12 | 40 |
| 9 | HANTS | 1 | 1 | 3 | | | 5 | 12 |
| 10 | INVERNESS | | 2 | 3 | | | 5 | 13 |
| 11 | KINGS | 1 | 2 | 5 | 1 | | 9 | 24 |
| 12 | LUNENBURG | 1 | 4 | | 2 | | 7 | 17 |
| 13 | PICTOU | | 1 | 2 | 1 | 1 | 5 | 17 |
| 14 | QUEENS | | | 1 | | | 1 | 3 |
| 15 | RICHMOND | | 1 | | | | 1 | 2 |
| 16 | SHELBURNE | | 1 | | | | 1 | 2 |
| 17 | VICTORIA | 1 | 2 | 1 | | | 4 | 8 |
| 18 | YARMOUTH | | 3 | 1 | | | 4 | 9 |
| | Totals | 6 | 30 | 31 | 19 | 2 | 88 | 245 |



**BID COMPETITION IN NOVA SCOTIA - 2009 CONSTRUCTION YEAR -
ASPHALT PAVING CONTRACTS ONLY**

47

| | County | Contracts with Bids by Occurance | | | | | Total Contracts | Total Bids |
|----|---------------|----------------------------------|-----------|-----------|----------|----------|-----------------|------------|
| | | 1 | 2 | 3 | 4 | 5+ | | |
| 1 | ANNAPOLIS | | | 3 | | | 3 | 9 |
| 2 | ANTIGONISH | | 1 | 1 | 3 | 1 | 6 | 22 |
| 3 | CAPE BRETON | 2 | 4 | | | | 6 | 10 |
| 4 | COLCHESTER | | 1 | 2 | 4 | 1 | 8 | 29 |
| 5 | CUMBERLAND | | 1 | 4 | | | 5 | 14 |
| 6 | DIGBY | 1 | | | | | 1 | 1 |
| 7 | GUYSBOROUGH | | 2 | | | | 2 | 4 |
| 8 | HALIFAX | 3 | 9 | 3 | | | 15 | 30 |
| 9 | HANTS | 2 | 5 | 1 | | | 8 | 15 |
| 10 | INVERNESS | 2 | 2 | 3 | | | 7 | 15 |
| 11 | KINGS | 1 | 2 | 3 | | | 6 | 14 |
| 12 | LUNENBURG | | 4 | 2 | 1 | | 7 | 18 |
| 13 | PICTOU | | 4 | 3 | | | 7 | 17 |
| 14 | QUEENS | | 1 | 1 | | | 2 | 5 |
| 15 | RICHMOND | | 3 | 1 | | | 4 | 9 |
| 16 | SHELBURNE | | 1 | | | | 1 | 2 |
| 17 | VICTORIA | 1 | 1 | | | | 2 | 3 |
| 18 | YARMOUTH | 1 | 3 | 1 | | | 5 | 10 |
| | Totals | 13 | 44 | 28 | 8 | 2 | 95 | 227 |

