BRIDGE INSPECTION REPORT
2017 INSPECTION YEAR

Darrell Evans, P.Eng.

Prince Edward Island
CANADA

Transportation,
Infrastructure and Energy

Foreword

In 2007, the Department of Transportation and Public Works (currently the Department of Transportation, Infrastructure and Energy) commenced a Province wide initiative to inspect all of our major highway and rails-to-trails structures and report on the condition of these structures on an biennial basis. The first set of inspections was conducted in 2008.

The department, in collaboration with Stantec, has developed a Comprehensive Bridge Inspection Training (CBIT) course which was the first ever course developed in Canada, by Canadian engineers, for Canadian bridge inspectors. It is a full, two week course which outlines the importance of bridge inspection work by breaking it down to the element level and material defect level. The course was designed to be given once every five year cycle. The next course is slated to be offered again in 2018.

The department solicited expression of interest from the local consulting community with a great interest from all parties. Currently there are six (6) local consulting firms contracted out to assist the department in retrieving valuable inspection data.

In conjunction with this, the department purchased a Bridge Management Software (BMS) system, which was developed by Stantec and based on the Ontario Structures Inspection Manual (OSIM), the standard to which the province inspects their structures.

As of the end of 2017, we are through our sixth full cycle of major highway and pedestrian structure (252) and rails-to-trails structure (36) inspections. It is our intention to have the entire highway structure network (1574 structures) inspected on a routine basis and entered into the bridge management system. The element data entry for the remaining 1286 structures is complete and the inspections for these structures are currently underway.

The success of this program could not be possible without the support of the Minister and Deputy Minister of Transportation, Infrastructure and Energy, nor without the work and efforts by our local consulting engineering community.

Inspection Program

The department has been conducting its inspection program since early 2008, using internal staff as well as external consultants.

In 2011, the department had undergone an internal audit by the Auditor General's office, specifically related to capital projects and bridge management. In the report, the Auditor mentioned that the department is conducting extensive bridge inspection and management practices without it being legislated.

With respect to the actual program, the department has divided the structures into geographical zones for which one of the external consultants is responsible for inspections. These zones are further divided in to even year and odd year inspections.

At the request of Treasury Board, the department now solicits Request for Proposal (RFP) documents from qualified engineering consulting firms for the inspection of our structures. The department requested RFP documents in early 2016 for the 2016 and 2017 inspection cycles. RFP documents were received in early March 2016 and the inspection zones were awarded in April of 2016. Consultants were given a Netbook computer with the BMS software for the input of inspection data.

The second year of inspections (of this two year inspection cycle) were carried out over the Summer/Fall months of 2017 and the inspection data was input into the Bridge Management System (BMS) software. Once the data was entered, checked, and verified by each of the consultants, it was then given to the department for their checks and verification. Once the department was satisfied with the inspection data, the inspection for each structure was then closed to any further changes. The final inspections were completed and closed in early January, 2018.

Inspection Results

The inspection data, which was entered into the BMS and verified by both the consultant and the department, is then manipulated by the BMS to set forth a series of results based on the inspection data.

The results of the 2017 inspection program are listed below and outline graphically in the appendices. There are currently only 288 structures which are inspected biennially and subsequently reported on. This represents 18% of the entire structure network; therefore, the results may not be indicative of the true condition of the entire Provincial network of highway

structures. This 18% of the network represents about 45% of the net replacement value; therefore, they represent a significant investment both fiscally and with respect to risk management.

Bridge Condition Index (BCI) Results.

The results of the inspections yield an overall Bridge Condition Index (BCI) for each structure. This index ranges from a condition index of Poor (BCI less than 60), Fair (60 < BCI < 70), and Good (70 < BCI < 99).

As of the completion of the 2017 inspections, the overall condition of the inspected network (288 structures) is as follows:

Condition State	Percentage of Inspected Structures
Good (BCI > 70)	48 %
Fair (60 < BCI < 70)	26 %
Poor (BCI < 60)	26 %
Average BCI	70.9

Table 1 – BCI Breakdown of All Inspected Structures

The overall condition of the inspected highway network (IE less the rails-to-trails network and pedestrian bridges, 251 structures) is as follows:

Condition State	Percentage of Inspected Highway Structures
Good (BCI > 70)	53 %
Fair (60 < BCI < 70)	27 %
Poor (BCI < 60)	20 %
Average BCI	72.9

Table 2 – BCI Breakdown of Inspected Highway Structures

A graphical representation of the BCI breakdown for all inspected structures and all inspected highway structures is given in Appendices ‘A’ and ‘B’ respectively.

If we consider the BCI distribution (as shown graphically in Appendices ‘C’ and ‘D’ for all inspected structures and all inspected highway structures respectively), we can see that there still exists a significant wave of structures being in the fair condition state that will soon be moving into the poor condition state.

Of note, we have met our target Key Performance Indicator of an average BCI > 70 for all inspected structures, as indicated in Appendices ‘A’ and ‘B’; however, with the noted ‘wave’ of fair-to-poor indicated above, this will undoubtedly change.

Bridge Criticality and Urgency (BCU) Results

In 2010, the department initiated a training module to include the assignment of risk parameters to the elements of each structure based on a Bridge Criticality and Urgency (BCU) rating. This is a 1 to 10 rating system, where 1 indicates no risk and 10 indicates very high risk of the element in question. A complete overview of the Bridge Criticality Rating is given in Appendix 'E'.

The department has been inspecting structures with a BCU rating in 2011 and we have been tracking the risk profile of the inspected network since this time. In general, the higher the BCU rating, then the higher risk category the structure is in.

We currently have a matrix of risk from low, medium, medium–high and high risk category. The matrix is indicated in Appendix 'F' for all inspected structures and Appendix 'G' for all inspected highway structures. This is summarized in the tables below.

Network Risk Distribution – All Inspected Structures 288 sites		
Risk Level	**# of Structures**	**%**
High	54	18.75
Medium-High	71	24.65
Medium	79	27.43
Low	84	29.17
Total	288	100

Table 3 – Network Risk Distribution All Inspected Structures

Network Risk Distribution – All Inspected Highway Structures 251 sites		
Risk Level	**# of Structures**	**%**
High	37	14.74
Medium-High	67	26.69
Medium	72	28.69
Low	75	29.88
Total	251	100

Table 4 – Network Risk Profile – All Inspected Highway Structures

As can be seen, the tables and graphs indicate that the department manages a significant amount of bridge infrastructure which is currently at high risk. In light of this, we are reviewing our five year capital bridge construction plan to include these structures in the program. We are also looking at conducting more periodic reviews of our higher risk structures in order to maintain an acceptable level of safety across the network.

Analogous to the BCI breakdowns, these graphs represent only those structures that are currently being inspected at this time (18% of the network) and do not reflect the overall cross section of highway structures that currently exist across the province.

Condition and Risk Trends

We have been tracking the BCI trend of the network of structures since 2011. We have also tracked the risk profile trend of the structures since 2011. The following table outlines the BCI Trend from 2011 through to 2017.

Network BCI Distribution (%)							
Condition State	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Good (70 < BCI)	35%	32%	37%	40%	43%	47%	53%
Fair (60<BCI<70)	29%	28%	26%	31%	29%	27%	27%
Poor (BCI < 60)	37%	40%	37%	29%	28%	26%	20%
Average BCI	62.8	61.9	66.6	69	69.3	70.3	72.9

Table 5 – BCI Breakdown over Time

The above table shows the department is making strides in overall bridge condition index. This is due to the maintenance and capital programs over the years; however, it's also due to significant training and calibration efforts within the inspection teams.

The following table indicates the risk profile trend over time.

Network Risk Trend														
	2011		**2012**		**2013**		**2014**		**2015**		**2016**		**2017**	
Risk Level	**No. Str.**	**%**	**No. Str.**	**%**	**No. Str.**	**%**	**No. Str.**	**%**	**No. Str.**	**%**	**No. Str.**	**%**	**No. Str.**	**%**
High	28	11	79	29.5	74	28.9	68	25.6	63	23.7	45	17.9	54	18.8
Med.-High	28	11	66	24.6	68	26.6	74	27.8	72	27.1	72	28.6	71	24.7
Med.	53	21	65	24.3	61	23.8	62	23.3	64	24	64	25.4	79	27.4
Low	141	56	58	21.6	53	20.7	62	23.3	67	25.2	71	28.2	84	29.2
Total	250	100	268	100	256	100	266	100	266	100	288	100	288	100

Table 6 – Risk Profile over Time

The risk profile trend indicates a significant jump of structures in the high risk category between 2011 and 2012. This is due to calibration training efforts within the inspection teams in order to have better correlation of results between inspection groups.

The risk profile indicates a slight downward trend in the high risk category from 2012 to 2015, with a slight increase of the high risk structures from 2015 to 2016 due to the increase in sample size. While the general trend is positive, additional inspection information is required to determine whether or not this trend will continue. BCI distribution and risk distribution are shown graphically in Appendices 'H' & 'I'.

Sufficiency Index (SI)

Currently, the Federal Highways Administration (FHWA) in the US uses a Sufficiency Rating system to better capture the overall sufficiency from an operational perspective as well as condition. The PEI Bridge Management System calculates a similar overall index referred to as the Sufficiency Index or SI.

The Sufficiency Index (SI) is a compilation of the BCI, BCU as well as other important operational factors; such as, load rating; scour potential; flood potential; fatigue critical elements; approach road geometry; structure lane width; barrier index; etc..

As of 2013, we have been including a rating for SI in our latest structure records; however, we note that no threshold exists for the upper and lower limits for SI. At this time, we are only reporting on the overall index and have arbitrarily chosen the SI limits of less than 70 being poor; between 70 and 80 as fair; above 80 as good.

The results are represented in the table below and graphically represented in Appendix 'J' for the entire inspected highway network. We note that a large portion is below the 70 threshold; however, we caution that there will be a few years of calibration required in order to ensure that the threshold limits for the upper and lower bounds are relatively sound. Therefore, we are only reporting on the actual numbers for information purposes only. Work shall continue on the calibration of this index.

Current SI Value	No. of Structure	% of Structures
80 < SI	105	41.8 %
70 < SI < 80	55	21.9 %
SI < 70	91	36.3 %
TOTAL	251	100 %

Table 7 – Sufficiency Index Results

Performance Deficiencies, Maintenance Needs and Recommended Works

Performance Deficiencies

The consultants are required to report on any suspected performance deficiencies for each element of a structure. Performance deficiencies are identified to supplement the information recorded in the condition states and are generally used when an element is suspected to not be performing as intended. These are outlined in Table 8 below with the number of occurrences for each as of the conclusion of the 2017 inspection period.

Performance Deficiency	No. of Occurrences in 2017	No. of Occ. In 2016
1-Load Carrying Capacity	990	1033
2-Excessive Deformations	101	86
3-Continuing Settlement	38	45
4-Continuing Movements	120	124
5-Seized Bearings	10	8
6-Brng. not Unif.Load/Unstbl.	20	20
7-Jammed Expansion Joint	9	9
8-Pedestrian/Vehicular Hazard	322	280
9-Rough Riding Surface	117	101
10-Surface Ponding	20	21
11-Deck Drainage	21	20
12-Slippery Surfaces	0	0
13-Flooding/channel Blockage	12	15
14-Undermining of Foundation	34	40
15-Unstable Embankments	96	77
16-Other	198	233
TOTAL	2108	2112

Table 8 – Performance Deficiencies

There is a large quantity of PD-01 – Load Carrying Capacity. This is primarily due to our aging infrastructure which is not currently constructed to the design standards of today.

Of note, there is a decrease in some areas, with an increase in other areas. These could be further alleviated with a more robust maintenance program. See the next section on Maintenance Needs and Recommended Works.

Maintenance Needs and Recommended Works.

Once a performance deficiency has been selected, the inspection teams are then required to select a Maintenance Need or Recommended Work in order to mitigate the performance deficiency.

A maintenance need is generally selected when the element in question has less than 25 % of its quantity in the poor condition state, or the work can be easily done by our internal maintenance personnel or standing offer crews. A recommended work is generally any works that does not fit in the above definition and is usually classified as a Capital project.

Inspection teams are to assign timing for the maintenance needs or recommended works and recommended works are to include an estimated cost. Maintenance needs and recommended works are not to overlap; that is, if a recommended work is selected for a specific element, there would not be a maintenance need associated with the same element. It will be one or the other.

Table 9 identifies the various maintenance needs with associated timings.

Maintenance Need	Timing			No. of Occurrences 2017	No. of Occurrences 2016
	Now	1 Year	2 Years		
1-Lift/Swing Bridge Maintenance	0	0	0	0	0
2-Bridge Cleaning	7	58	40	105	82
3-Bridge Handrail Maintenance	40	163	167	370	356
4-Painting Steel Bridge Struc.	0	17	34	51	62
5-Bridge Deck Joint Repair	0	10	12	22	26
6-Bridge Bearing Maintenance	2	2	8	12	8
7-Repairs to Structural Steel	0	9	15	24	18
8-Repair of Bridge Concrete	2	43	373	418	301
9-Repair of Bridge Timber	18	118	420	556	493
10-Bailey Bridge Maintenance	0	0	0	0	0
11-Animal/Pest Control	2	2	2	6	5
12-Bridge Surface Repair	3	32	70	105	98
13-Erosion Control at Bridges	15	50	50	115	122
14-Concrete Sealing	0	0	5	5	2
15-Rout and Seal	1	19	61	81	81
16-Bridge Deck Drainage	3	9	7	19	23
17-Other	99	107	141	347	373
TOTALS	192	639	1405	2236	2050

Table 9 – Maintenance Needs

As can be seen, there is a significant amount of maintenance required for timber repair, concrete repair and handrail maintenance. We can also see a significant jump in the total amount of Maintenance Needs required. These could be significantly alleviated with the addition of a dedicated crew assigned to Bridge Maintenance, specifically mandated to review and address the maintenance concerns on our structures as outlined by the inspection reports.

Table 10 summarizes the recommended works and includes associated costs with the works. There are too many categories of recommended works to summarize in this report; however, they range from barrier repairs/replacement to girder repairs, abutment repairs, sub-structure repairs, etc., etc..

Timing	2017 No. of Occ.	Cost	2016 No. of Occ.	Cost
Urgent	21	$409,315	28	$904,440
< 1 year	115	$2,373,895	116	$2,639,857
1 - 5 year	475	$10,974,704	463	$9,521,860
6 - 10 year	117	$2,130,124	98	$1,810,235
None	4	$20,200	4	$20,200
Total	732	$15,908,238	709	$14,896,592

Table 10 – Recommended Works

We can see from the tables that there is a significant amount of work required now and within the next 5 years. While there has been a slight reduction of work required urgently, there is an increase in the overall value of work required and this trend is likely to continue without any preventative maintenance as suggested above.

Five Year Capital Program

Based on the bridge inspections, Bridge Condition Indices and Risk Profile, we have developed a five (5) year Capital Construction Program which allows for an annual budget of +/- $5.0M. The program can be found in Appendices ‘K’ and ‘L’.

The program has been created in conjunction with the program set forth from the Bridge Management System (BMS) as well as the risk and BCI profiles. We’ve taken into consideration the volume of traffic and the importance of the highway network IE. Arterials, Collectors, etc..

What is not included in this five year program are the following:

- Some key preservation items for our larger, more important infrastructure sites. Most notably, the Hillsborough and West River Bridges need to be re-painted in order to lengthen their serviceability lives. These could cost in the order of $5.0 M and $2.0 M respectively.
- There is also no project or funding set aside in the five year plan for the structural modifications to the Hillsborough Bridge as a result of any future Active Transportation corridor or sanitary force main.
- There are no funds for the smaller, buried type structures which will undoubtedly also require capital expenditures.
- There are no funds dedicated for any major rehabilitation or replacement works for any of the Rails-to-Trails network of structures.

The program is what we plan to have done over the next five years. It is important to note that it may need to be adjusted depending on weather events, further budget constraints, other structural issues throughout the network that is not inspected, etc., etc..

Conclusions and Recommendations

The report outlines the need for additional funding in order to maintain a serviceability of the highway structure network. There are areas of significant risk that the department is assuming on a number of structures that are currently being inspected. We have no real indicator on how this translates into the remaining portion of the highway network that is not currently being inspected; however, it would be safe to state that a one-to-one ratio would be a conservative estimate of the risk that exists on the remaining uninspected network.

We have included some Forecast scenarios in Appendices ‘M’, ‘N’, ‘O’, ‘P’, ‘Q’ and ‘R’. These indicate the trend of Bridge Condition Index (BCI) over time. Three scenarios are given: 1) Do Nothing; 2) Unconstrained Budget; and 3) Constrained Budget. It can be clearly seen the effects of doing nothing versus our currently constrained budgets.

We are currently working on inspecting all remaining structures within the entire network and inputting the inspection data into the Bridge Management System (BMS) software, based on the Ontario Structures Inspection Manual (OSIM). This will take several years to complete.

The following are some recommendations to be considered:

- To increase funding to a sustainable level for several years to come in order to reduce the department’s liability and to maintain an acceptable level of serviceability to the traveling

public. We would also recommend increasing our inspection budgets to include the remaining portion of structures currently not being inspected.

- To increase to compliment of internal bridge maintenance crews to 2 to address the ever growing list of maintenance needs that are currently being reported on. We also recommend expanding the funding for the standing offer contractors to include those knowledgeable in concrete repair methods and procedures to address the larger structures.

- To set aside some preservation funds for our most important structures in order to extend their service lives.

- Reducing the number of structures on our network by closing or severing non-essential or seasonal roads as required or any roads that have redundancy built into the network. We closed one structure and weight restricted one structure within the network and we expect this number of bridge closures and weight restrictions to increase as time continues. Currently, we have eight structures that are weight restricted and 10 that are either closed or have been removed.

- Secure funds for the structural modifications required for the Hillsborough Bridge structure to accommodate the Active Transportation Corridor as well as the sanitary force main pipe.

In closing, we will continue to conduct routine inspections on our network of structures and will include all our smaller structures as time and budgets permit. We realize that budgets are constrained and we will continue to work within these confines as required; however, the reports show that there will be consequences as a result.

Respectfully Submitted;

_____

Darrell Evans, P.Eng.
A/Asst. Director
Capital Projects Div.
Transportation, Infrastructure
And Energy

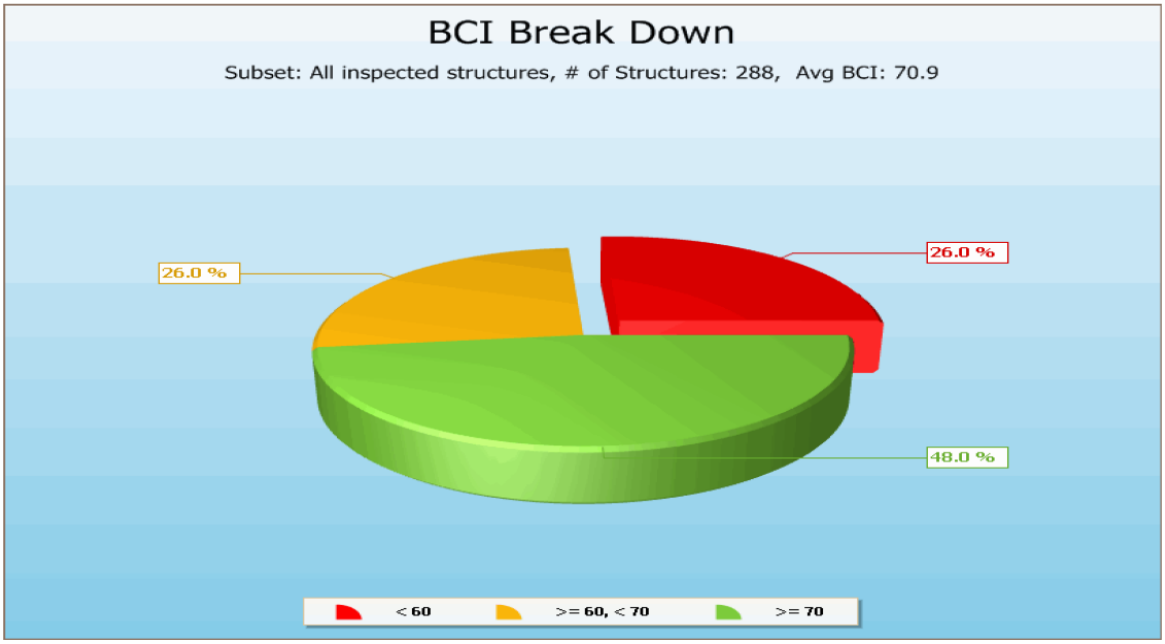
Date Submitted: _____

Appendix 'A'

BCI Breakdown, All Inspected Structures

Department of Transportation And Infrastructure Renewal

Key Performance Indicator Report



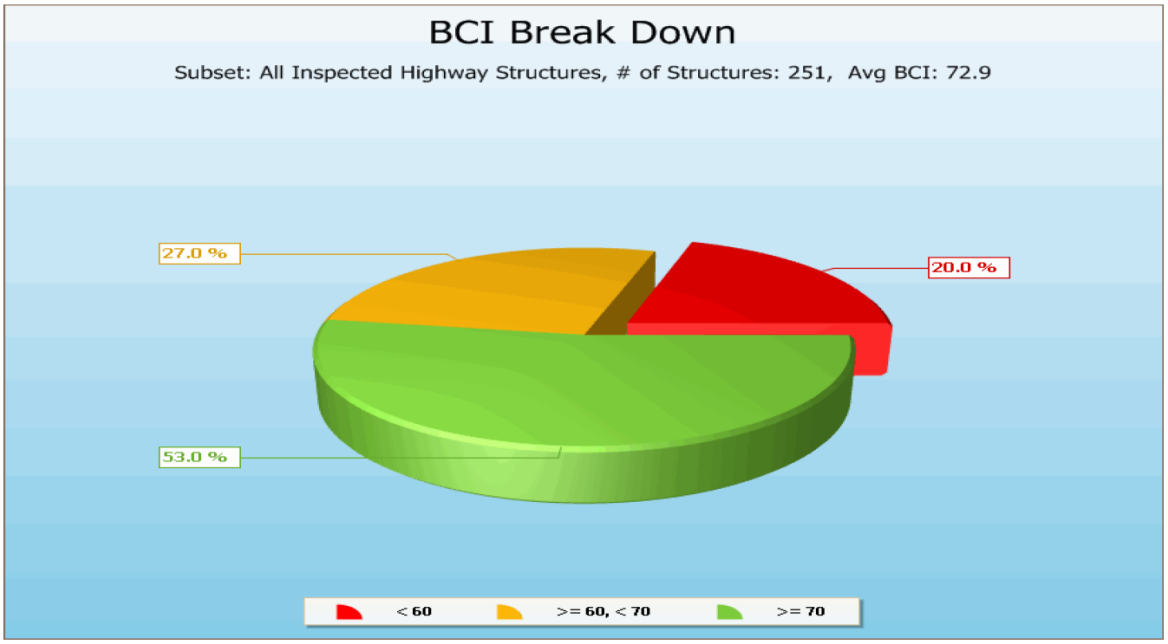
Subset: All inspected structures, # of Structures: 288

Appendix 'B'

BCI Breakdown, All Inspected Highway Structures

Department of Transportation And Infrastructure Renewal

Key Performance Indicator Report



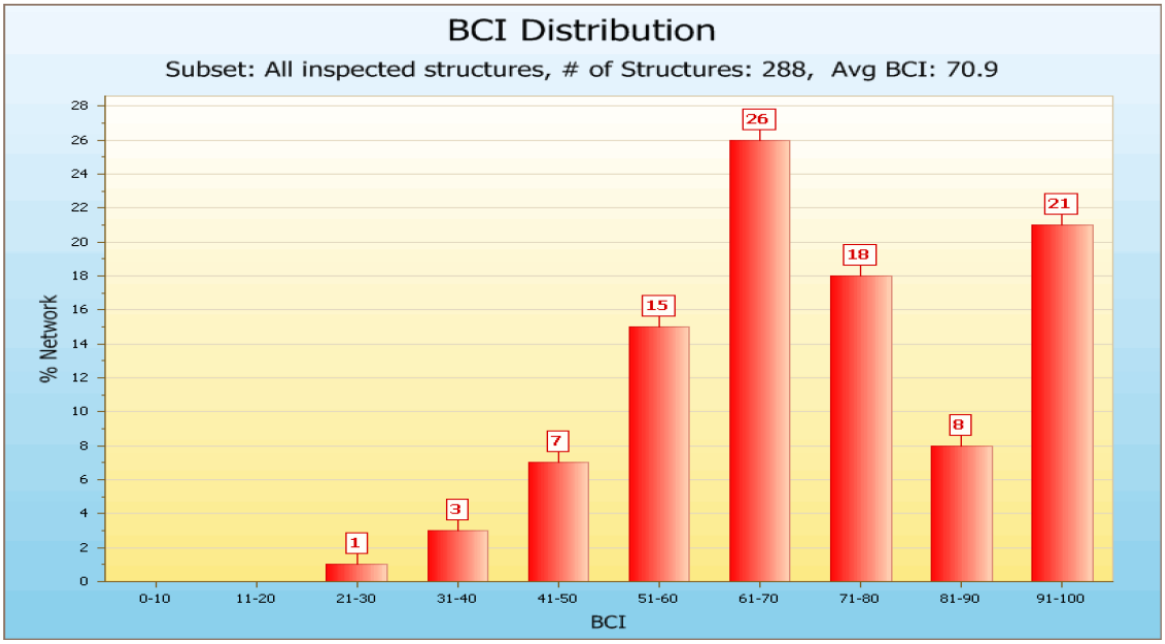
Subset: All Inspected Highway Structures, # of Structures: 251

Appendix 'C'

BCI Distribution, All Inspected Structures

Department of Transportation And Infrastructure Renewal

Key Performance Indicator Report



Subset: All inspected structures, # of Structures: 288

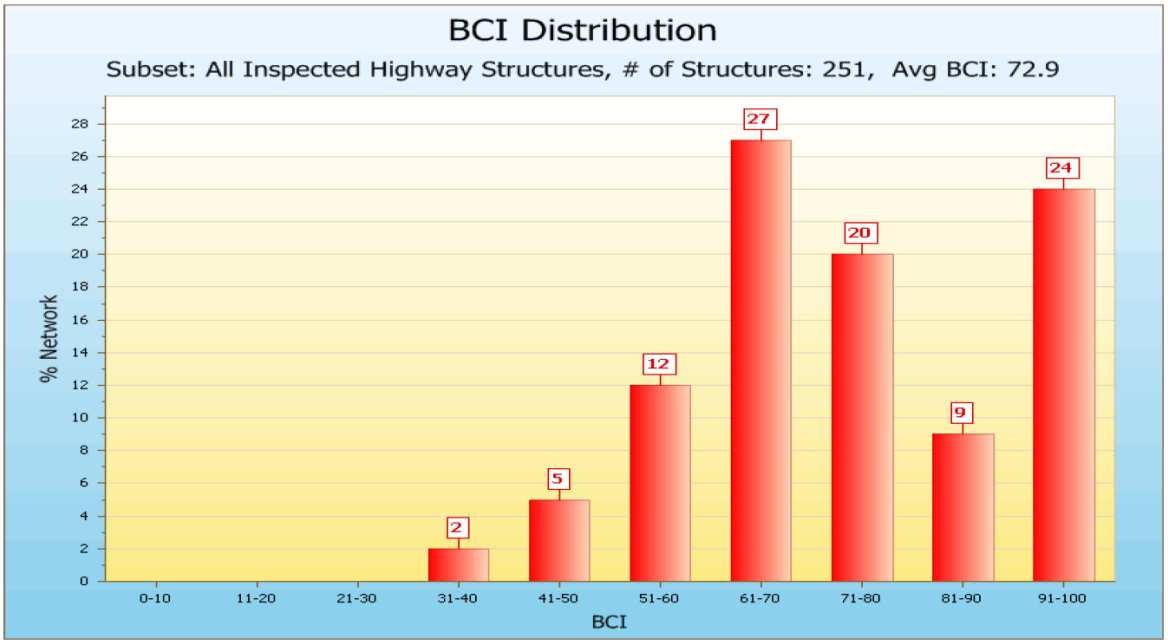
Appendix 'D'

BCI Distribution, All Inspected Highway Structures

Department of Transportation And Infrastructure Renewal
Bridge Section

Department of Transportation And Infrastructure Renewal

Key Performance Indicator Report



Subset: All Inspected Highway Structures, # of Structures: 251

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Appendix 'E'

Bridge Criticality Rating

Bridge Criticality Rating

1 - No Repairs, No Safety Concerns.
- Strength: Element retains its original design load carrying capacity and requires no repairs at this time. Minor non-structural maintenance.
- Safety: There are no safety concerns on the structure.

2 - No Repairs in foreseeable future, No Safety Concerns.

3 - No Structural Repairs necessary at this time. No Safety concerns.
- Strength: Element retains its original design load carrying capacity but may require minor non-structural repairs in near future.
- Safety: There are no safety concerns on the structure.

4 - Non Structural Repairs, No Safety Concerns.
- Strength: Element retains its original design load carrying capacity but requires non-structural repairs.
- Safety: There are no safety concerns on the structure.

5 - Minor Structural Repairs, No Safety Concerns.
- Strength: The element's design load carrying capacity may be reduced to a minor extent; the element requires some minor structural repairs.
- Safety: There are no safety concerns on the structure.

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6 - Minor Structural Repairs, Minor Safety Concern.
- Strength: The element's design load carrying capacity may be reduced to a minor extent; the element requires some minor structural repairs.
- Safety: There may be a minor safety concern on the structure.

7 - Minor Structural Repairs, Moderate Safety Concern.
- Strength: The element's design load carrying capacity may be reduced to a minor extent; the element requires some minor structural repairs.
- Safety: There is a moderate safety concern.

8 - Moderate Priority Structural Repairs, Moderate Safety Concern.
- Strength: The element's design load carrying capacity is reduced to a moderate extent but load evaluation is not being recommended; the element requires moderate priority structural repairs to remain in long term service.
- Safety: There is a moderate safety concern.

9 - Moderate Priority Structural Repairs, Significant Safety Concern.
- Strength: The element's design load carrying capacity is reduced to a moderate extent, load evaluation is recommended, but lane closure is not recommended; the element requires moderate priority structural repairs to remain in long term service.
- Safety: There is a significant safety concern

10 - High Priority Structural Repairs, Significant Safety Concern.
- Strength: The element's design load carrying capacity is reduced significantly; a bridge or lane closure, load posting, or load evaluation is recommended; the element requires high priority structural repairs to remain in service.
- Safety: There is a significant safety concern

Stantec Consulting Ltd.
January 2010

Appendix 'F'

Network Risk Profile, All Inspected Structures

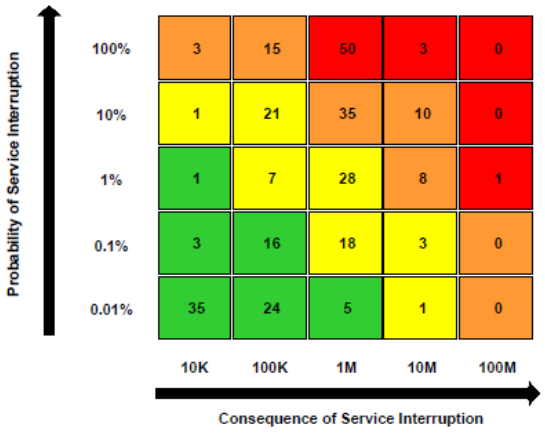
Department of Transportation And Infrastructure Renewal
Bridge Section

Department of Transportation And Infrastructure Renewal

Network Risk Profile

Databases	BMS_PEI_Master_20160121.mdb	Total Number of Structures	288
Subset	All inspected structures		
User	peitir1		

Number of Structures in Each Risk Category



Network Risk Distribution

Risk Level	# of Structures	%
High	54	18.75%
Medium-High	71	24.65%
Medium	79	27.43%
Low	84	29.17%
Total	288	100.00%

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Appendix 'G'

Network Risk Profile, All Inspected Highway Structures

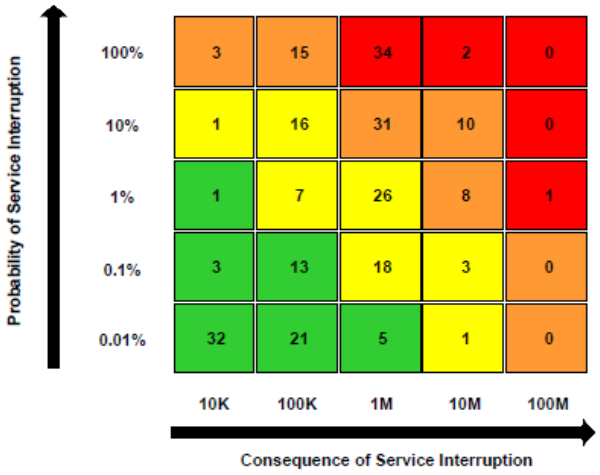
Department of Transportation And Infrastructure Renewal
Bridge Section

Department of Transportation And Infrastructure Renewal

Network Risk Profile

Databases	BMS_PEI_Master_20160121.mdb	Total Number of Structures	251
Subset	All Inspected Highway Structures		
User	peitir1		

Number of Structures in Each Risk Category



Network Risk Distribution

Risk Level	# of Structures	%
High	37	14.74%
Medium-High	67	26.69%
Medium	72	28.69%
Low	75	29.88%
Total	251	100.00%

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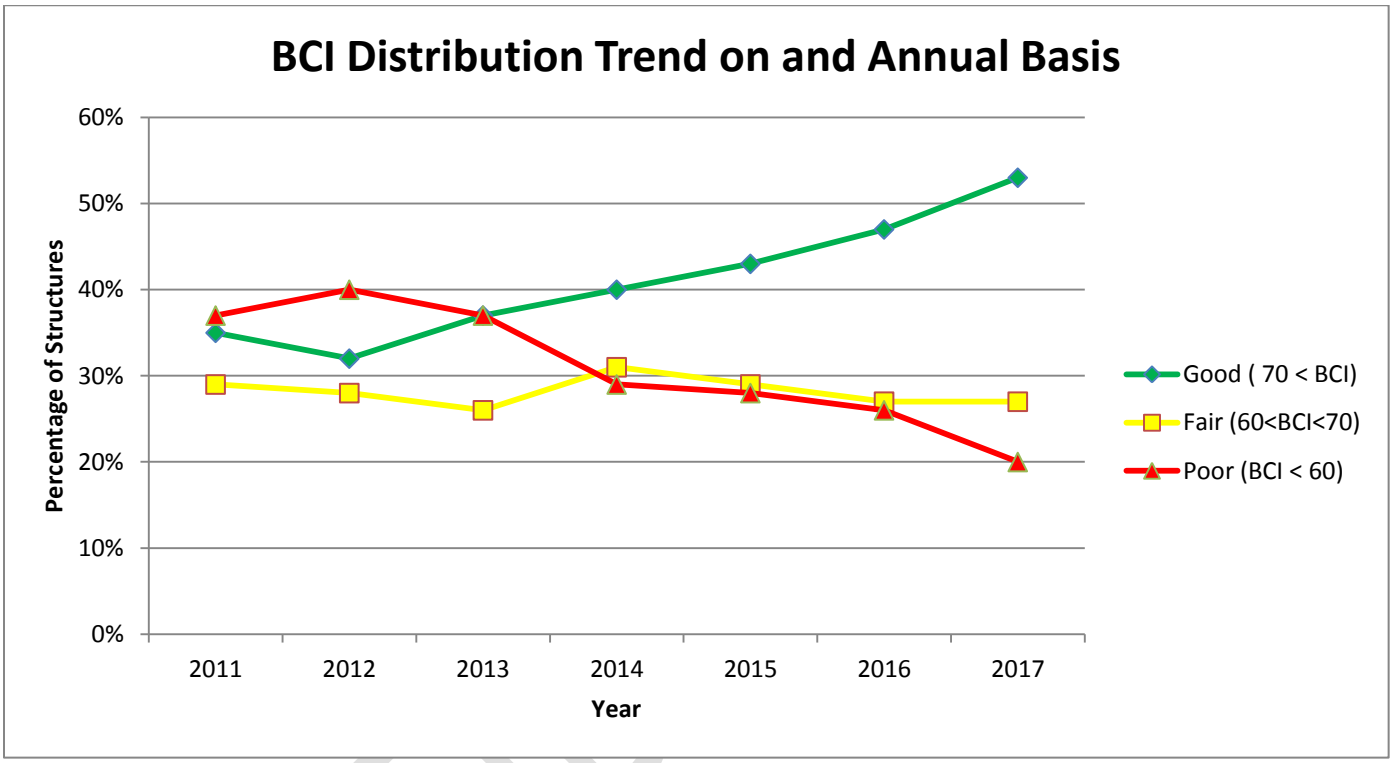
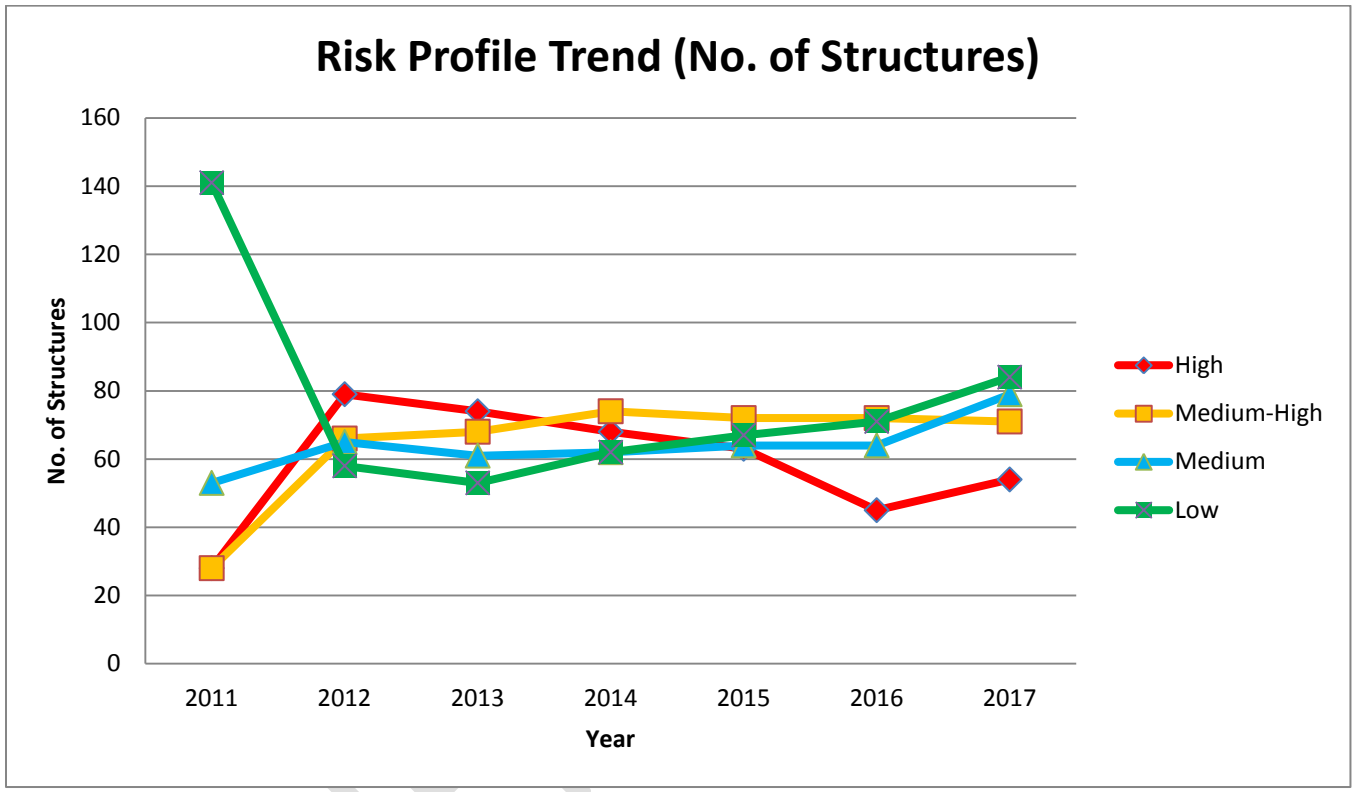
Appendix 'H'

BCI Trend Graph over Time



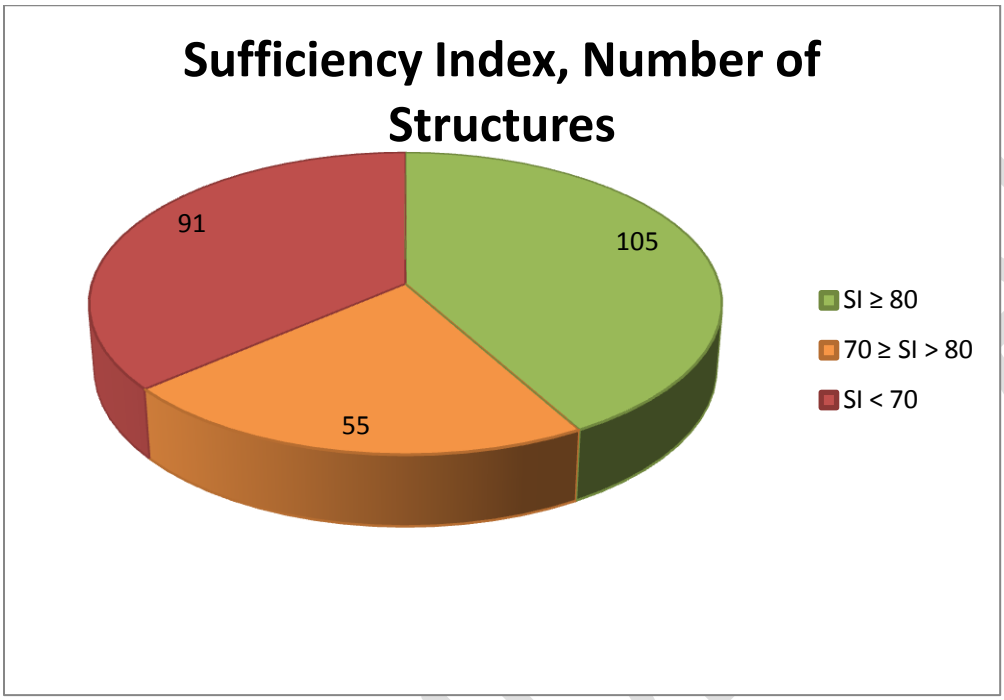
Appendix 'I'

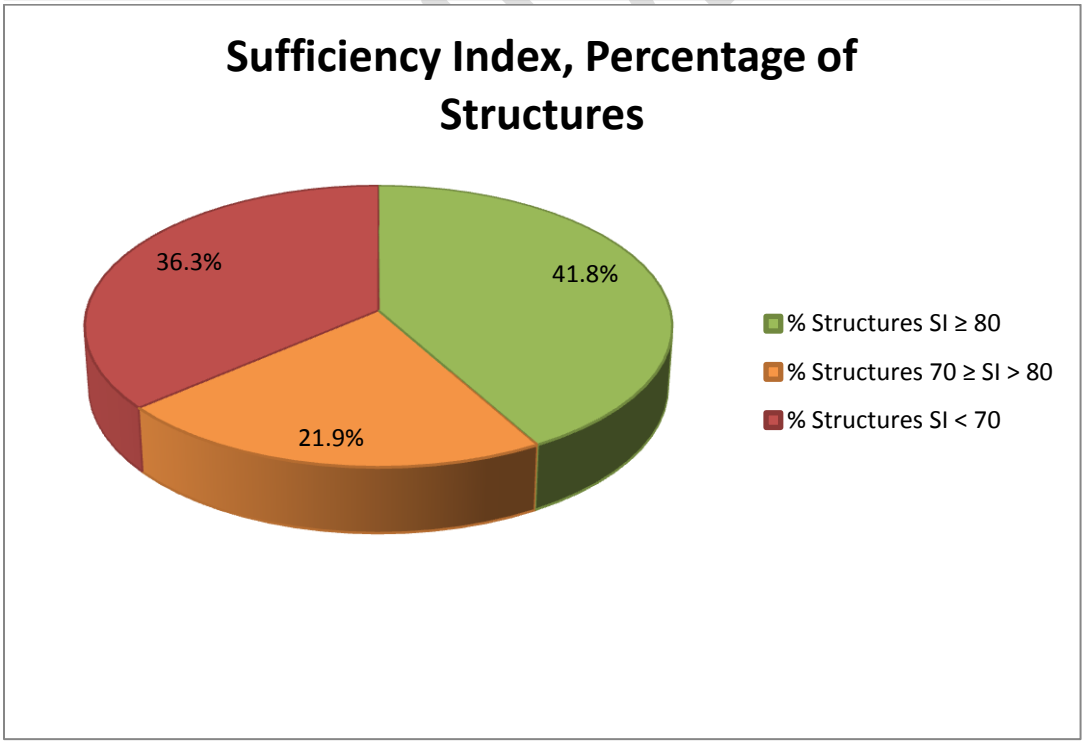
Risk Profile Trend over Time



Appendix 'J'

Structure Sufficiency Index (SI) Breakdown





Appendix 'K'

2018/19 Bridge Projects

Region	Project Name	District	Route/ Section	Bridge ID	Description of Work
East	Hazelgreen Road	2	32901	K3-049	Replacement
East	Woodville Mills	2	33401	K5-017	Replacement
East	Lorne Valley Road	2	35501	K3-051	Replacement
East	Dromore - McCannel Rd.	7	25501	Q3-039	Replacement
East	Little Harbour	1	01601	K1-033	Replacement
East	Murray Harbour	4	01801	K4-013	Replacement
West	Dock Road	26	15001	P1-085	Replacement

2019/20 Bridge Projects

Region	Project Name	District	Route/ Section	Bridge ID	Description of Work
East	Sorrey Bridge	3	13701	K3-038	Replacement
East	Five Houses	2	32701	K2-037	Replacement
West	Ox River	25	01102	P2-035	Replacement
West	Campbellton Bridge	25	14302	P1-093	Replacement
West	Cabot Park	20	10501	P3-009	Replacement
West	Simpson Mill	18	Maint. ID 50325	Q1-071	Replacement

2020/21 Bridge Projects

Region	Project Name	District	Route/ Section	Bridge ID	Description of Work
East	St. Peters Road	8	00207	Q5-001	Replacement
East	Little Sands	4	00409	Q4-012	Replacement
East	County Line Road	2/5	01102	K3-032	Replacement
West	Portage Bridge	25	00219	P2-046	Replacement
West	Coleman	26	13701	P1-010	Replacement
West	Oyster Creek	26	01211	P1-009	Replacement
West	Egmont Bay	24	01105	P3-047	Replacement

Appendix 'L'

2021/22 Bridge Projects

Region	Project Name	District	Route/ Section	Bridge ID	Description of Work
East	Wood Islands (Mt. Vernon)	4	31501	Q4-007	Replacement
West	Searletown Bridge	19	01003	P4-048	Replacement
West	Bideford Bridge	23	01207	P2-016	Replacement
West	Crapaud	17	01301	Q1-052	Replacement
East	Southhampton	7	31302	K2-019	Replacement
West	St. Felix	27	15301	P1-041	Replacement

2022/23 Bridge Projects

Region	Project Name	District	Route/ Section	Bridge ID	Description of Work
West	Brae Bridge	25	13801	P2-027	Replacement
West	Alaska	25	13801	P2-029	Replacement
West	Gains Creek	25	17401	P2-093	Replacement
West	South Fretown	19	10903	P4-018	Replacement
West	Sheep River	25	13501	P2-034	Replacement
East	Peakes Road	7	32001	K2-039	Replacement
East	Peakes Bridge	7	32302	K2-030	Replacement
East	Head of Montague	2	21002	K3-033	Replacement
East	Wood Islands	4	00409	Q4-007	Replacement

Appendix 'M'

BCI Forecast Summary All Inspected Structures
Do Nothing

Department of Transportation And Infrastructure Renewal

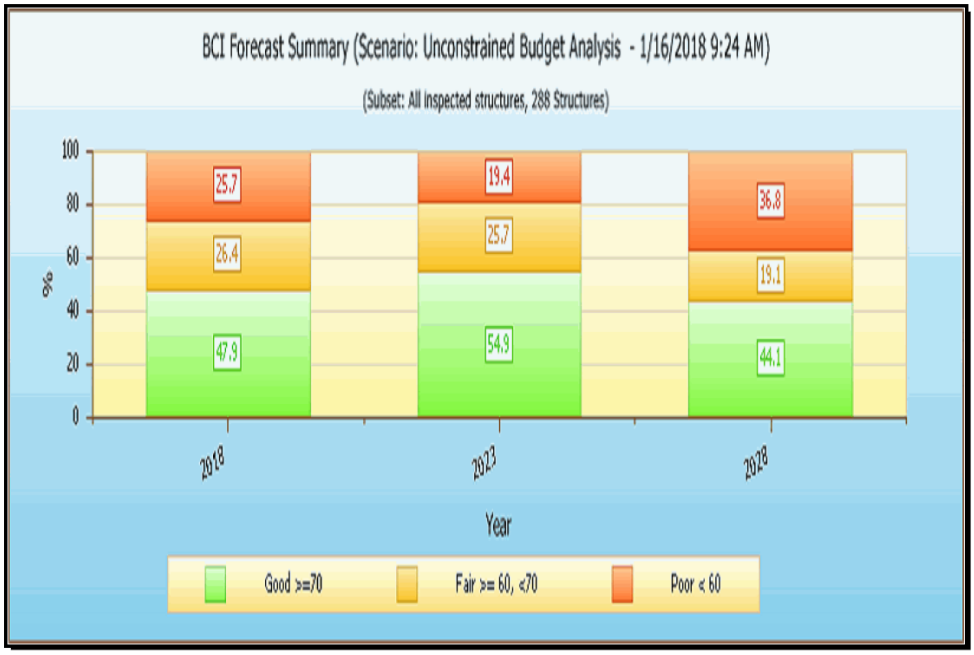
BCI Forecast Summary

Appendix 'N'

BCI Forecast Summary All Inspected Structures
Unconstrained Budget

Department of Transportation And Infrastructure Renewal

BCI Forecast Summary



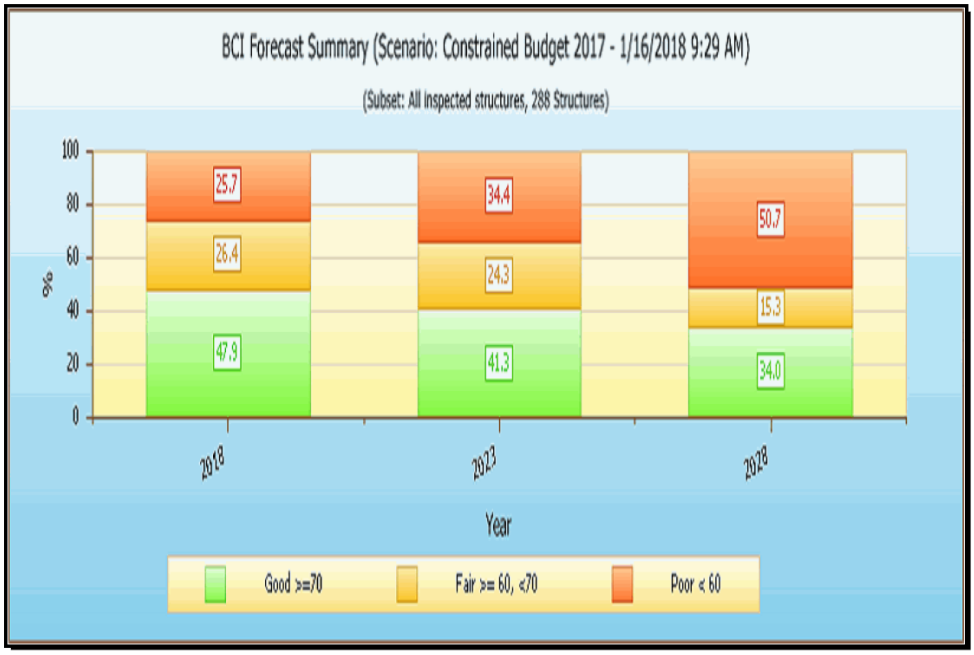
Appendix 'O'

BCI Forecast Summary All Inspected Structures
Constrained Budget

Department of Transportation And Infrastructure Renewal
Bridge Section

Department of Transportation And Infrastructure Renewal

BCI Forecast Summary



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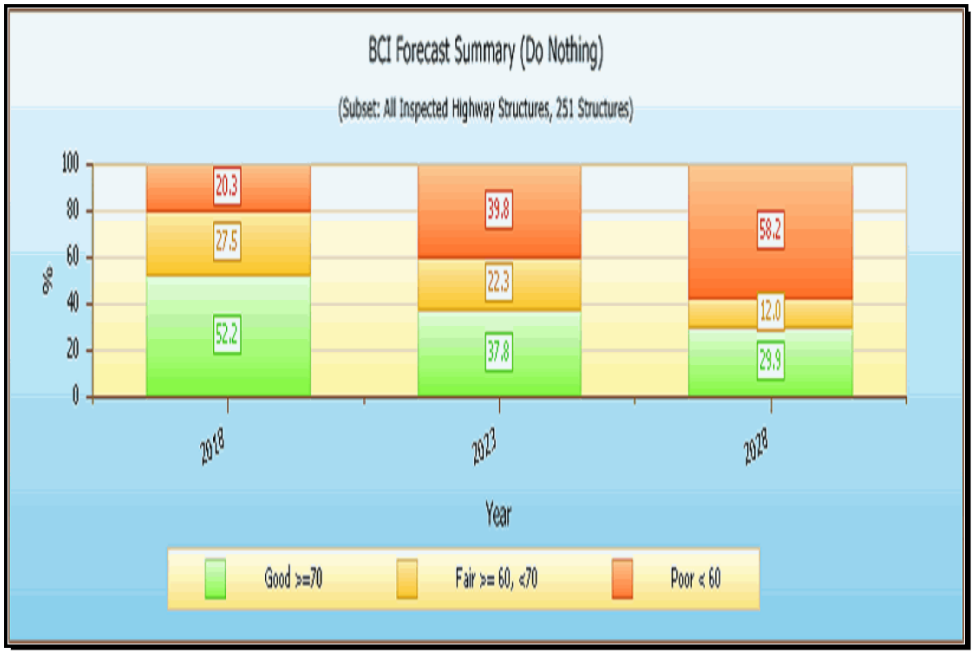
Appendix 'P'

BCI Forecast Summary All Inspected Highway Structures
Do Nothing

Department of Transportation And Infrastructure Renewal

BCI Forecast Summary

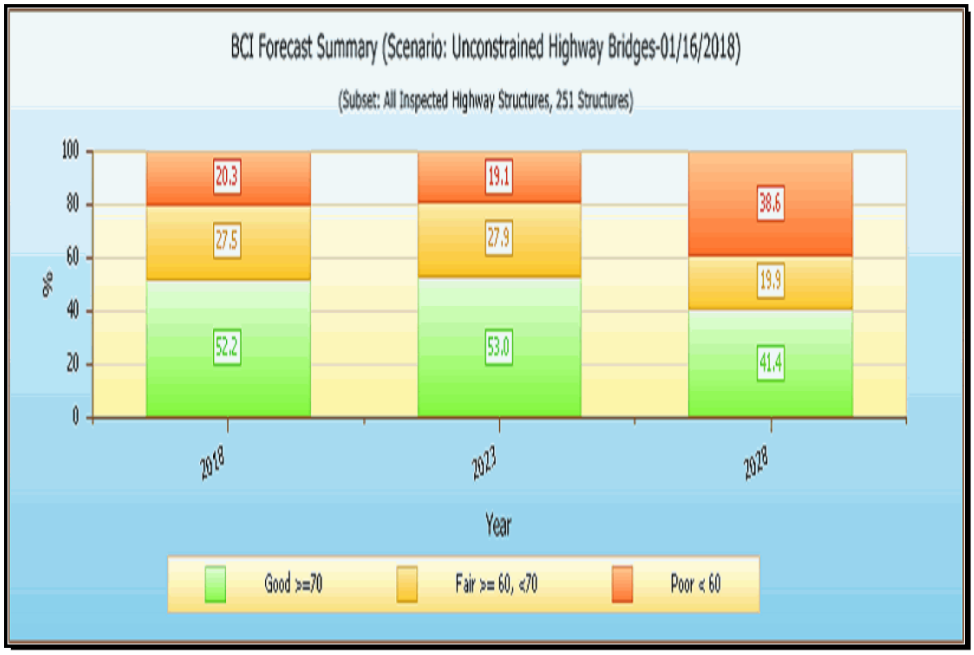


Appendix 'Q'

BCI Forecast Summary All Inspected Highway Structures Unconstrained Budget

Department of Transportation And Infrastructure Renewal

BCI Forecast Summary



Appendix 'R'

BCI Forecast Summary All Inspected Highway Structures
Constrained Budget

Department of Transportation And Infrastructure Renewal

BCI Forecast Summary