

MUNICIPALITY OF LEAMINGTON

AGENDA



**SPECIAL COUNCIL MEETING
TO BE HELD**

**MONDAY, JULY 26, 2010
COMMENCING AT 7:00 P.M.**

IN THE COUNCIL CHAMBERS

MATTERS FOR CONSIDERATION:

(A) REPORTS OF STAFF & DELEGATIONS:

1. Executive Summary to Report DCS 01/10
Pages 2-3
2. Report DCS 01/10 dated June 25, 2010 re: S/E Leamington Sustainability -
Summary Report
Pages 4-25

JB

EXECUTIVE SUMMARY

DCS/01/10 S/E LEAMINGTON SUSTAINABILITY - SUMMARY REPORT

AIM:

To provide Council with information and recommendations concerning the future of the Southeast area of Leamington, specifically the areas of the East Marsh, Marentette, and Lloyd Drainage schemes, and the shoreline residential areas between Wheatley and Point Pelee National Park (PPNP).

BACKGROUND: (pp 1-6)

The Background provides a brief synopsis of the following major studies, reports and stated views of government agencies and stakeholders that have been generated on relevant topics in the study area since 2007

- Sustainable Management Strategy for Southeast Leamington (May 2007)
- The East Marsh Drainage Scheme Dyke Assessment Report (Nov 2008)
- Concession Road B and C Improvements (Nov 2008)
- Point Pelee Peninsula Eastern Shoreline Erosion Mitigation Study (PPPESEMS) (April 2010)
- Concept E: A Hybrid Solution (Sept 2009) and Addendum (March 2010)
- Colchester to South Shoal Sediment Management Study (May 2010)
- Federal Government comments to date
- Provincial Government comments to date
- The Southeast Leamington Stakeholders Committee
- Water quality issues

COMMENTS: (pp 6-11)

Staff reports have already been presented to Council concerning the 2007 Sustainable Management Strategy report, the East Marsh Drainage Scheme Dyke Assessment, and Road C improvements. This section of the report comments on the PPPESEMS, Concept E, the S/E Leamington Stakeholders committee, and the area between Wheatley Harbour and Hillman Marsh.

DISCUSSION (pp 11-14)

This section of the report presents administrations views on the strategic issues that Council needs to focus on in attempting to understand the issues and find a way forward; it is organized into the following sub-sections:

- Accepting the technical conclusions
- The 'Cost' Dichotomy, the 'Who Pays?' Conundrum and the 'Managed Wetland' Irony
- The public policy debate: the solution lies here

CONCLUSIONS: (pp 14-16)

The difficult conclusion is that the Municipality of Leamington cannot afford the cost to maintain the status quo, and cannot afford to take the risk of potential liability to its residents and property owners if the infrastructure is not upgraded in accordance with modern engineering standards.

This conclusion is made not on the basis of 'environmental sustainability' but rather on the basis of the fact that the area is not 'economically sustainable' in the current fiscal reality of the Municipality of Leamington; thus the driving force for change is not really the 'environment', but rather the 'economics', or more specifically, the 'costs'.

Because the 'do nothing alternative' will not achieve any of the environmental or economic goals and objectives of any public policy set over the long term, senior governments and/or private agencies whose goals and objectives align with the environmental and ecological potential in the area should be invited to come forward as a proponent to initiate the process for changes in land use.

THE WAY FORWARD; FINANCIAL IMPACT; RECOMMENDATIONS: (pp 16-19)

Fundamentally there are two paths that Council may choose as the way forward, and these are:

Option 1: maintaining the status quo land uses of the Official Plan, and

Option 2: supporting a significant change in land uses such as open space or managed wetlands.

These sections of the report set out the required studies to move forward in either direction, along with broad estimates of the cost implications for each.

REPORT

TO: MAYOR & MEMBERS OF COUNCIL
FROM: JOHN D. TOFFLEMIRE, P. ENG., DIRECTOR OF COMMUNITY SERVICES
DATE: JUNE 25, 2010
RE: S/E LEAMINGTON SUSTAINABILITY - SUMMARY REPORT

1. AIM:

To provide Council with information and recommendations concerning the future of the Southeast area of Leamington, specifically the areas of the East Marsh, Marentette, and Lloyd Drainage schemes, and the shoreline residential areas between Wheatley and Point Pelee National Park (PPNP).

2. BACKGROUND:

Following is a brief synopsis of the major studies and reports that have been generated on relevant topics in the study area since 2007, as well as stated views of Federal and Provincial agencies and the South East Leamington Stakeholders committee.

2.1. Sustainable Management Strategy for Southeast Leamington (May 2007)

In April 2007, ERCA was presented with a report entitled, 'Sustainable Management Strategy for Southeast Leamington' by Baird & Associates. This study was the subject of report CAO 05-07, which indicates that the study was initiated *'as a result of concerns and observations of ERCA, experts and representatives of various government agencies with respect to the sustainability and viability of existing shoreline protections systems along the southeast shore of Leamington'*.

This study identified a number of serious concerns, such as ongoing changes to the shoreline profile, deterioration of protective dykes and drainage infrastructure, inadequate road access, and failure to meet various components of the Provincial Policy standards for both public and private infrastructure in the study area. The study also raised the possible need for a 'hydraulic connection' between the waters of the Hillman Marsh, and the marshes of Point Pelee National Park.

The report described various alternative scenarios for possible future changes to the land uses in the area, generally concluding that the low-lying agricultural areas within the East Marsh, Marentette, and Lloyd Drainage schemes, and the shoreline residential areas adjacent to Lake Erie between Wheatley and Point Pelee National Park, (the 'Study Area') were 'not sustainable', and that alternative land uses should be considered. The alternative land use put forward became known as 'Concept D' (Attachment 1). A key component of this concept was the creation of an environmental corridor between Hillman Marsh and PPNP by restoring wetlands that had once existed in the region.

The report outlined broad costs and benefits for Concept D in order to make a business case to support phased implementation. The fundamental conclusion of the study was that the area was not sustainable over the long term, that the agricultural and residential land uses should change, and that PPNP would benefit from an alternative land use that connected the hydrology and the

wild life to the Hillman Marsh. The business case was intended to illustrate that these changes could bring about an alternative economy that would substitute the benefits now derived from the agricultural and residential uses, such as ecology, tourism, and recreation.

2.2. The East Marsh Drainage Scheme Dyke Assessment Report (Nov 2008)

As a result of Council's consideration of report CAO 05-07, further technical studies were carried out. Report DCS 08-08 acted on Council's direction to 'obtain an opinion from a qualified engineer with respect to the long term stability of the dyke that abuts the Hillman Marsh'.

This study concluded that essentially this dyke needs to be reconstructed, and estimated the costs at about \$3.5M (\$Cdn-2007). Significant proportions of this cost would be borne by both the Municipality and the drainage scheme participants should the works proceed under the Drainage Act. *[Please note that the cost estimates have been updated in the recently completed Point Pelee Peninsula Eastern Shoreline Erosion Mitigation Study (PPPESEMS) and the updated numbers are used in the summary analysis later in this report.]*

Council received the report for information.

2.3. Concession Road B and C Improvements (Nov 2008)

Report DCS 09-08 also resulted from Council consideration of report CAO 05-07, which recommended a review of alternatives for access into the study area including the possible reconstruction of Road B or Road C, in order to provide access compliant with Provincial standards, since the elevation of the access road is too low, and to correct side slope deficiencies to the open drainage ditch on the north side.

The report concluded that Road C could be reconstructed to meet the standard and correct the deficiencies at a cost of approximately \$3.7M (\$Cdn-2007).

Council received the report for information.

2.4. Point Pelee Peninsula Eastern Shoreline Erosion Mitigation Study (PPPESEMS) (April 2010)

Report CAO 05/07 recommended that ERCA consider the issue of the protection of farmland and drainage structures off the Marentette Drainage Scheme in its work program. Accordingly, the study of the area where the Marentette Drainage Scheme and Point Pelee National Park intersect with Lake Erie was approved for study by Council pursuant to report DCS 06/08 and resolution C-269-08 enacted on July 14, 2008 and which reads in part as follows:

"That Council approve a Geotechnical study of the Marentette Dyke and adjacent PPNP shoreline in partnership with ERCA and Point Pelee National Park / Parks Canada, with a Municipal contribution not to exceed Fifty-five Thousand Dollars (\$55,000.00)."

As reported out in DCS 06-08, the original study purpose was described as follows:

"This proposed study would consist of a geotechnical study of the Marentette Dyke and adjacent PPNP shoreline. The issues are somewhat similar to the Hillman Dyke study, although the Marentette dyke study area is larger and more complex because of the need to consider the existing shoreline area adjacent to Point Pelee... Administratively, Point Pelee and Parks Canada would be included in the overall study program, as proposed. "

The original draft terms of reference were presented for review in the fall of 2008; at the request of Parks Canada, the scope of technical study of the Lake Erie shoreline was increased, resulting in more comprehensive information about erosion processes and possible mitigation strategies.

This report was completed in April 2010 and presented to the ERCA Board recently in May 2010. The results as they pertain to the Municipality of Leamington and to the Marentette and Lloyd Drainage schemes are significant and are discussed in the 'Comments' section of this report below.

2.5. Concept E: A Hybrid Solution (Sept 2009) and Addendum (March 2010)

A report entitled 'Southeast Leamington Sustainable Management Strategy - Concept E: A Hybrid Solution, was prepared by Baird consultants at the request of ERCA, and according to the report was intended as a response to the feedback ERCA had received concerning 'Concept D', which had been recommended from the original 'Sustainable Management Strategy' report of 2007. This report did not use the same interagency joint study team approach as the original study or the subsequent East Marsh Dyke Assessment report or the PPPESEMS report.

Concept 'E' was put forward by ERCA as a compromise scenario whereby the existing residential land uses along the Lake Erie shoreline would remain, while the agricultural and residential uses within the East Marsh, Marentette, and Lloyd drainage schemes would transition to a 'managed wetland' area (see Attachment 2). The retention of the residential uses along the shoreline makes it necessary to retain and upgrade road access along Road C, which under Concept E includes an 'eco-passage' which would allow for an interconnection of water the water table, fish and wildlife, and plant life between the Hillman Marsh and the PPNP wetlands.

When the Concept E report was received by ERCA in the fall of 2009, it was noted that additional information was needed and therefore an addendum to the report was prepared and presented to the Board in early April 2010. Much of the pertinent information, especially regarding cost estimates, was prepared in the analysis done for the PPPESEMS being carried out simultaneously.

It should be noted that a concept similar to Concept E was a part of the original series of alternatives considered in the original analysis for the 'Sustainability Management Strategy' report but in the end discarded in favour of Concept D.

Comments on both Concept D and E are contained in the 'Comments' section of this report below.

2.6. Colchester to South Shoal Sediment Management Study (May 2010)

The final major study in the compendium is not directly related geographically to the East Beach area but is useful to consider because it helps to complete the picture of the natural Lake Erie shoreline processes in action on both sides of Point Pelee. Essentially, the problem on the westerly side of PPNP is that the various piers constructed over the last century between Colchester and PPNP have held up the natural migration of sand along the beach and therefore the beaches have been unable to sustain their natural shape and size; erosion has occurred inland and along the bottom of Lake Erie, in somewhat similar fashion to the down cutting along the East Beach. The report recommends a number of possible measures to help mitigate these problems, including sand bypassing of the piers, importing and depositing sand up-current from PPNP, and placing structures along the shoreline to help trap and retain more sand.

A further report will be prepared on this study but no further comment will be provided in this report.

2.7. Federal Government comments to date

Report DCS 08/08 contained the following comments which stated the position of the Federal Government Ministries at that time:

“With respect to developing a sustainable management strategy, Environment Canada, Parks Canada, and Fisheries & Oceans Canada have agreed that:

- There is an acute need to prepare for and mitigate public safety concerns due to a risk of flooding, which would cause property damage and/or loss as a result of severe weather events. Appropriate disaster planning is essential and required to evaluate the risks and to provide appropriate advice and expertise.*
- Federal Departments and Agencies will respect jurisdiction and existing policy and regulatory frameworks.*
- Only those actions and investments that are directed towards ecological, social/cultural and economic sustainability will be supported.*
- There is interest in the implementation of a Sustainable Management Strategy for Southeast Leamington over a time frame defined by the community in concert with the Essex Region Conservation Authority.*
- There will be no support or approval for shoreline protection works for existing or future private residences excepting that permitted by legislation, policies and guidelines.”*

More recently, in early 2010, Federal government representatives advised that no funding was available at this time for any of the initiatives being contemplated.

2.8. Provincial Government comments to date

The position of the Provincial Government Ministries was stated in report DCS 08/08 at that time:

“A Provincial response to the Baird Sustainable Management Strategy for Southeast Leamington - Phase 2 Report (April 20, 2007) has been provided by the Ontario Ministry of Natural Resources (MNR).

The following briefly summarizes some of MNR’s positions presented in their response:

- From an MNR perspective, connectivity between natural heritage features is best restored in Concepts D3 and D4.*
- The significance of exotic species was not adequately addressed in Appendix 4 (Biodiversity Assessment for Southeast Leamington). Specifically, Phragmites is a very serious biodiversity threat in the study area that appears to be downplayed by in the study.*
- From a municipal planning point of view, any infilling of residential uses may not meet the current standards under the Planning Act (Provincial Policy Statement) due to presence of shoreline hazards. Conservation Authorities have a role to play in implementing the Natural Hazard Policy in areas susceptible to flooding, erosion, and/or dynamic beach hazards.*

- *Local zoning by-laws and the Official Plan should adequately address the current level of risk present in the study area. The province supports a precautionary approach in dealing with the potential for loss of life and property damage associated with potential storm impacts along the Great Lakes.*
- *MNR supports the need for safe access for new development on existing lots.*
- *MNR notes that when the recommendations are presented as an amendment to the Leamington Official Plan, the policies will be tested against the entirety of the 2005 Provincial Policy Statement.*
- *The report appears to incorporate much of the guidance documented in the Great Lakes-St. Lawrence River and Large Inland Lakes, Technical Guide. The Technical Guide should be used in its entirety.*
- *The MNR reaffirms their support for the use of the 176.0 metre elevation for defining the flood hazard limit. MNR notes that further study could potentially result in a recommendation to increase the storm surge elevation figure.*
- *Do Nothing and Status Quo concepts would likely result in more erosion and sedimentation, with potential impacts on fish habitat.*
- *Options with significant engineering works would require work permits, would be subject to the MNR Environmental Assessment process and may require detailed coastal assessments.*
- *Any shoreline works must consider impacts on near shore fish activities”*

2.9. The Southeast Leamington Stakeholders Committee

In 2009, Council approved the establishment of a committee of stakeholders in South East Leamington to provide feedback on matters related to the various studies and Concepts being discussed through ERCA and the Municipality. In early 2010, the committee agreed to four ‘short term’ goals as follows:

- Wheatley Harbour sand by-passing;
- Annual sand nourishment;
- Shoreline protection along the Hillman conservation / Lake Erie shoreline and at the north end of PPNP;
- Repair Road C to meet Provincial standards and create a turnaround at the terminus of Road 1 near Hillman Marsh.

Subsequently the committee reached consensus on six ‘long term principles’:

- Leamington Council will determine the long term goals for SEL, and control the timing of their implementation;
- There will be no expropriation of land in developing or implementing the long term goals for SEL now or in the future;
- The short term goals previously developed by our committee shall be the first steps taken in developing the new SEL and they will be funded to the maximum extent possible by the senior governments; these short term goals must be implemented before any long term goals are implemented;
- All recommendations by the senior governments for the long term changes in land use made to the Leamington Council must be accompanied by very detailed plans that include detailed explanations of the benefit to be derived from the proposed land use change,

precise descriptions of the change proposed, precise costing that includes who planned the proposal, who will do the work, precise time lines, and how the proposed changes will impact on the Leamington community financially and ecologically, and most specifically how this will improve the quality of life for the residents of Leamington;

- All proposals for land use change in SEL will be funded by the senior governments to the maximum extent possible
- There may be merit in expanding the specific are currently under study.

2.10. Water quality issues

One of the recommendations from report CAO 05-07 was to submit a report outlining alternatives for wastewater treatment in the study area. Budget funds have not been allocated to date for this work. The intent of the study was to focus on residential development along the shoreline.

Water quality was considered in the PPESEMS because PPNP are concerned about poor water quality affecting the natural habitat within the Park. Water quality samples were taken from the Lloyd Drain, and from various locations in PPNP and the drainage canals adjacent to the Marentette Drain. Serious water quality problems, related both to e coli from faulty septic systems and to total phosphorus, organic nitrogen and total nitrogen from agricultural runoff were noted.

The study recommends installing a cutoff dyke adjacent to the dykes at the southeast corner of the Marentette Drainage scheme, as a short term measure to reduce the exchange of water between the Marentette Cut and PPNP.

3. COMMENTS:

Staff reports have already been presented to Council concerning the 2007 Sustainable Management Strategy report, the East Marsh Drainage Scheme Dyke Assessment, and Road C improvements. Following are comments on the PPESEMS, Concept E, the S/E Leamington Stakeholders committee, and the area between Wheatley Harbour and Hillman Marsh.

3.1. Point Pelee Peninsula Eastern Shoreline Erosion Mitigation Study (PPESEMS):

This report recommends a number of immediate measures in the area where the Marentette Drainage scheme, PPNP, Marentette Beach Rd, and Lake Erie meet (see attachment 3), namely:

- A shoreline flood berm to protect the dykes from lake waves and storm surges
- A cutoff dyke to eliminate water exchange from the Marentette cut into PPNP
- Shoreline protection upgrades; and
- A cobble / rip rap berm in Lake Erie opposite the ephemeral outlet of the Marentette cut.

These works are estimated to cost in the range of \$4.9 to \$5.7M (\$Cdn 2009) depending on the design of the flood berm, and should they be implemented under the Drainage Act, would be assessed against the drainage scheme participants.

The report also proposes a second phase of interior infrastructure upgrades and repairs in and around the Marentette and Lloyd Drainage schemes and Marentette Beach Road, including:

- Shore Protection Upgrades and Cobble / Rip Rap Berm, to update the toe protection for the existing works along the Marentette Beach properties and to extend the Phase one cobble rip rap berm in Lake Erie northerly to East Beach Road.

- Road C upgrades (as per report DCS 09-08 described above)
- Marentette Pump House Upgrades
- Marentette South Dyke upgrades for seepage and erosion
- Road 19 / Road D bridge repair
- Lloyd South Dyke upgrades for seepage and erosion

The cost of these repairs is estimated to total approximately \$18M. It should be noted that this cost includes the cost of the Road C improvements cited above.

The PPPESEMS also contains substantial analysis and comment on protective works associated with PPNP and with the Hillman Marsh. The total cost of works adjacent to PPNP is estimated at \$9.4M, and would be the responsibility of Parks Canada or others.

Two options are presented for Hillman Marsh: Option H1 is referred to as a 'Natural Barrier Beach Evolution' and would add protection to the existing cells within the Marsh; the reconstruction of the East Marsh Drainage Scheme dyke is required as described above. The total cost of these works is estimated at \$11.9M (including the dyke). The other option H2 is to attempt to stabilize the beach at the outlet to the beach at Lake Erie with a lake bed berm of cobble and rip rap, as well as beach stabilization along the west side of the existing barrier beach, at an estimated cost of \$9.1M. This option would reduce the cost of the Hillman Dyke reconstruction by about \$0.65M.

3.2. Total Cost Summary

Following is a preliminary estimate of costs taking into account the technical studies summarized above, with a very arbitrary estimate of the breakdown that could accrue to the Municipality, the Drainage Scheme participants, and/or third party private property or other agencies. The division of costs is intended only to illustrate 'order of magnitude costs', and are subject to both further detailed engineering review and/or formal Engineer's Reports under the Drainage Act (numbers rounded to nearest 0.1M)

<u>Improvement</u>	<u>Municipality*</u>	<u>Dr Scheme*</u>	<u>Other</u>	<u>Total</u>
E. Marsh Dyke (H1)	\$2.0M	\$2.0M		\$4.0M
Road C**	\$3.7M			\$3.7M
Marentette [Ph 1]	\$1.0M	\$3.9M		\$4.9M
Marentette [Ph 2]		\$1.6M	\$5.3M	\$6.9M
Lloyd [Ph 2]	\$1.5M	\$2.8M		\$4.3M
Hillman Marsh (H1)	_____	_____	<u>\$5.6M</u>	<u>\$5.6M</u>
SUB TOTAL	\$8.2M	\$10.3	\$10.9	\$29.4M
Contingency (25%)	<u>\$2.1</u>	<u>\$2.6M</u>	<u>\$2.7M</u>	<u>\$7.4M</u>
Grand Total (H1)	\$10.3	\$12.9M	\$13.6M	\$36.8M

E Marsh Dyke (H2)	\$1.7M	\$1.7M		\$3.4M
Hillman Marsh (H2)			\$4.6M	\$4.6M
Total (H2)	\$7.9M	\$10.0M	\$9.9M	\$27.8M
Contingency (25%)	<u>\$2.0M</u>	<u>\$2.5M</u>	<u>\$2.5M</u>	<u>\$7.0M</u>
Grand Total (H2)	\$9.9M	\$12.5M	\$12.4M	\$34.8M

Notes: * all apportionments are arbitrary estimates and subject to formal review.

** the cost for Road C is based on the estimate for raising the elevation of the road; it is possible to reconstruct at the existing level for about \$2M less (\$1.8M in \$2007)

The Bottom line 'Grand Total (H2)' figures represent the best estimate of baseline costs to maintain the status quo from the data in the PPPESEMS. In other words, if the current agricultural and residential land uses are to be maintained in the area:

- the Municipality needs to be prepared for at least \$8 to \$10M in direct capital expenditure (depending on the elevation of Road C);
- the private property owners in the drainage scheme need to be prepared for at least \$12.5M, and
- private property owners, drainage scheme participants, the Municipality and possibly other senior government partners would need to jointly fund \$12.5M for the lakebed armouring in Lake Erie
- the report recommended the work be carried out in a five year time frame.

It must be noted as outlined in the comments below concerning Concept E, that these cost estimates do not contain the lakebed cobble protection that is suggested in the Concept E report. Further, these investments do not result in the ability of the area to have new development, because other components of the mandatory requirements of the Provincial Policy Standards (such as lake setbacks) may still not be met. The improvements described allow the current residential and agricultural land uses and activities to continue the way they are now.

3.3. Concept 'E' and Addendum

The Concept E Addendum report includes preliminary cost estimates for maintain the status quo land uses, which are very similar to (and in many cases derived from) the analysis summarized above from the PPPESEMS. One significant difference noted is that the Concept E report contains a cost item for the lakebed cobblestone shoreline protection adjacent to the residential shoreline properties of East Beach Road, whereas the cost estimates for the PPPESEMS (the table above) do not. The report contains an estimate of the division of costs to the Municipality, the Drainage Scheme participants, and to various agencies, in the same way as the table above is presented.

Following is a summary of the cost from the Concept E addendum report. The infrastructure includes the items noted above from the PPPESEMS cost summary as well as the additional lakebed cobble protection and estimates for normal drain maintenance and repair over time. Numbers are rounded to the nearest \$0.1M and include a 25% contingency.

<u>Improvement</u>	<u>Municipality</u>	<u>Dr Scheme</u>	<u>Other</u>	<u>Total</u>
E. Marsh Dr.	\$4.0M	\$6.5M	\$12.3M	\$22.8M
Marentette Dr.	\$2.5M	\$2.6M	\$16.3M	\$21.4M
Lloyd Dr.	\$3.2M	\$4.4		\$7.6M
Grand Total	\$9.7M	\$13.5M	\$28.6M	\$51.8M

These figures correlate to the figures above and again provide a good indication of the costs of maintaining the status quo land uses. Each set of figures shows a Municipal cost close to \$10M, a cost to the drainage scheme participants close to \$13M, and costs to various agencies (yet to be determined) that could range from \$12M to \$26M depending on how much lake bed cobblestone protection is implemented.

The Concept E report goes on to suggest an opinion of costs for changing the land use within the three drainage schemes to a 'managed' wetland. This transformation is proposed over 25 years and would involve:

- immediate temporary repairs to roads and dykes
- acquiring the land and demolishing the buildings
- re-grading the land,
- restoring the water table and the hydraulic connection of the Hillman Marsh and the PPNP marshes,
- re-establishing the natural plant and animal habitats,
- reconstructing Road C for access to the shoreline properties (including an 'eco-passage for water and animal access)
- constructing trails and boardwalks
- shoreline lakebed armouring
- stabilizing the Hillman Marsh Barrier Beach

The report contains an opinion of costs summarized as follows (absolute dollars, rounded to \$0.1M)

Time Frame	Item	Total Cost (M)
Years 1-10	Dykes and roads	\$4.0M
	Property	\$28.6
Years 1-5	NE PPNP at Marentette Drain	\$2.2
Years 5-10	Hillman beach	\$1.9
Years 11-25	Re-grading etc.	\$23.5
	Road C Eco-passage	\$4.0
	Trails etc.	\$4.6
	Vegetation etc.	\$5.3

	Lakebed armouring	\$3.0
Years 1-25	Soft costs	<u>\$13.4</u>
Sub total		\$90.4
	25% contingency	<u>\$22.6</u>
GRAND TOTAL		\$113.0M

The report notes that because these expenditures are sequenced over 25 years, the present value of the \$113M estimate is approximately \$81.2M

Another way of breaking down the costs is as follows (25% contingency included):

Item	Cost (\$M)
Dykes, roads, lake bed armouring	\$18.9M
Property	\$35.7M
Re-grading etc	\$41.8M
Soft Costs	<u>\$16.7M</u>
TOTAL	\$113.1M

This breakdown illustrates that nearly \$20M must be spent on the dykes, roads, and lakebed armouring in order to support Concept E. It also illustrates that total infrastructure related costs (i.e. costs aside from property and soft costs) are estimated at \$60.7M.

In other words, the infrastructure cost of maintaining the status quo is estimated at \$34.8M to \$51.8M (depending on how much lakebed armouring is done), whereas the infrastructure costs of converting to Concept E is estimated at about \$60.7M, plus land and soft costs.

The Concept E report attempts to place these costs into a cost benefit framework citing the overall societal and economic benefits of biodiversity, ecological integrity, fisheries, recreation, and tourism as justifications for the property acquisitions, land use changes and capital investments. In addition, risks and uncertainties associated with erosion and flooding hazards, potential Drainage Act liabilities for the Municipality, avoidance of large capital expenditures, and the continued loss of muck soils are put forward as additional justifications for change.

There is not a direct comparative analysis of Concept E and Concept D, but simplistically, the trade off is essentially that with Concept E the purchase of the shoreline residential properties is avoided, but there is an added cost for the upgrade of Road C (including the 'eco-passage' bridge structure). In addition, traditional municipal services to the shoreline residential uses would need to be provided under Concept E.

3.4. The Southeast Leamington Stakeholders Committee

The short term goals developed by the committee and noted above are all valid concerns. The first two, i.e. Wheatley Harbour sand by-passing and annual sand nourishment, should happen regardless of any other developments or priorities in the study area and should be supported.

Similarly, shoreline protection along the Hillman conservation at the north end of PPNP is required and shoreline protection is recommended along the entire shoreline from Wheatley to PPNP under all scenarios. One complication is the extent to which such protection (and the related costs) is attributable to the drainage scheme beneficiaries as discussed above; the other complication is who bears the cost, regardless of drainage schemes.

Implementation of the repairs to Road C to meet is dependent on the decisions that are made regarding long term land uses in the area. If shoreline residential development is to remain, the road needs to be upgraded. If new development is to occur it needs to be upgraded and raised to a higher elevation as well.

The creation of a turnaround at the terminus of Road 1 near Hillman Marsh is supportable also, given the fact that the top of the dyke will not be used as a municipal road.

Comments and observations on the committee's long term principles are as follows:

- *Leamington Council will determine the long term goals for SEL, and control the timing of their implementation;*
The Municipality does have control over changes to the Official Plan.
- *There will be no expropriation of land in developing or implementing the long term goals for SEL now or in the future;*
No acquisition of land by any means is being recommended by the Municipality of Leamington.
- *The short term goals previously developed by our committee shall be the first steps taken in developing the new SEL and they will be funded to the maximum extent possible by the senior governments; these short term goals must be implemented before any long term goals are implemented;*
See comments above.
- *All recommendations by the senior governments for the long term changes in land use made to the Leamington Council must be accompanied by very detailed plans that include detailed explanations of the benefit to be derived from the proposed land use change, precise descriptions of the change proposed, precise costing that includes who planned the proposal, who will do the work, precise time lines, and how the proposed changes will impact on the Leamington community financially and ecologically, and most specifically how this will improve the quality of life for the residents of Leamington;*
The process for reviewing proposed changes in land use would be similar to other significant changes to the Official Plan, and would normally require significant technical justification and public consultations.
- *All proposals for land use change in SEL will be funded by the senior governments to the maximum extent possible*
The proponent for change would be expected to fully fund the changes both for implementation and for ongoing maintenance.

- *There may be merit in expanding the specific are currently under study.*
The 'study area' for consideration in this report has been defined as the areas of the East Marsh, Marentette, and Lloyd Drainage schemes, and the shoreline residential areas between Wheatley and Point Pelee National Park (PPNP). If changes occur the area involved may depend upon which agency becomes the proponent for change.

3.5. Wheatley Harbour to Hillman Marsh

Council asked that this report contain comments about the area north of Hillman Marsh to Wheatley Harbour, since this area was not included in the original study area of the 2007 'Sustainable Management strategy' report. The PPPESEMS comments on this area (see section 4.5.3 of that report) and observes that many of the existing shoreline protection structures are vulnerable to wave overtopping and recommends raising the crest elevation by adding additional armour stone and in some cases a layer of filter stone, geotextile filter fabric, and compacted earth fill behind the new rock, depending on site conditions.

Through discussion it was also observed that the lakebed armouring with cobbles and rip rap could be extended northerly beyond Hillman Marsh, and therefore further discussion about such infrastructure should include consideration in this area.

4. DISCUSSION

4.1. Accepting the technical conclusions

There is a large body of technical work building on the topic of the conditions of the shoreline of Lake Erie from Wheatley Harbour to PPNP and the actions necessary to mitigate same. The preponderance of this information indicates that there have been serious negative impacts from sand deprivation, shoreline hardening, and decoupling of the hydrological regime between Hillman and PPNP, in addition to water quality problems from both residential and agricultural land uses. The writer's view is that the technical conclusions should be accepted as a basis for decision making: in other words, there are serious problems in the area which affect Municipal interests and which must be addressed in the short term, including:

- Inadequate dyke structures, specifically the Hillman / East Marsh dyke and the Marentette and Lloyd Dykes adjacent to PPNP
- Inadequate shoreline protection from Wheatley Harbour to PPNP
- Inadequate protection of the barrier beach at Hillman Marsh
- Inadequate road infrastructure
- Municipal and residential risk and liability

It is worth noting here that if the drainage schemes or the residential developments were to be developed today, they would need to pass through a complex review process, most likely an Environmental Assessment process, and also that engineering standards for the design, construction and maintenance of dykes and shoreline protective works has become more sophisticated and complex (and costly) compared to when many of the works in the area were constructed. Should the Municipality decide to embark on the recommended infrastructure investments needed to maintain the status quo, it is possible if not likely that some components of the Environmental Assessment process would need to be carried out before approvals would be granted to proceed. In particular, regulations pertaining to species at risk and fish habitat have become significantly more complex in recent years. While works carried out under the Drainage

Act could be exempt from Provincial EA's, Federal assessments would most likely still need to be completed.

The corollary of accepting the technical conclusions is accepting the cost estimates. As can be seen from the summary of costs in section 3.2 above, the baseline cost for maintaining the status quo is estimated at \$34.8M over the next five years, as follows:

Municipality	\$9.9 M
Dr Scheme	\$12.5M
Shared by?	<u>\$12.4M</u>
TOTAL	\$34.8M

The Municipality does not have these estimates in any capital plans and does not have the resources to allow any reasonable expectation that these works could be approved in the foreseeable future. Similarly it would be difficult to recommend placing the burden of such a large drainage assessment on the participants of the drainage schemes. Both of these comments are amplified by the uncertainty of the cost attribution of the lakebed cobbles which could be a shared cost adding to the financial burdens of both the Municipality and the drainage scheme participants.

The statements to date from Federal and Provincial Ministries do not give any reason for optimism that significant senior government funding would be made available.

4.2. The 'Cost' Dichotomy, the 'Who Pays?' Conundrum, and the 'Managed Wetland' Irony

Dichotomy: division into two mutually exclusive, opposed, or contradictory groups.

Conundrum: a paradoxical, insoluble, or difficult problem; a dilemma.

Irony: an outcome of events contrary to what was, or might have been, expected.

The 'cost' dichotomy is created by the fact that **the cost of 'Concept E' is much greater than the cost of maintaining the status quo**, with the total cost estimate (noted in section 3.3 above) placed at \$113M (present value estimate \$81.2M). Another way of breaking down the costs as summarized in section 3.3 above, shows that *'the infrastructure cost of maintaining the status quo is estimated at \$34.8M to \$51.8M (depending on how much lakebed armouring is done), whereas the infrastructure costs of converting to Concept E is estimated at about \$60.7M, plus land and soft costs.'*

The 'who pays' conundrum is created by the practical assumption or reality that **an agency *other than* the Municipality of Leamington would be the proponent responsible for implementing an alternative land use configuration**. While the Municipality could express its openness to consider land use changes, it is not really appropriate for Leamington to advocate for decisions on land use changes that should be led by (and paid for by) another level of government or agency, for reasons of public policy that would be under their governance. In practical terms there needs to be a proponent, whether a public or private agency, come forward and express an interest in changing the land use, following which the Municipality could consider the planning and fiscal resource implications of such a proposal. **At the moment, while there are advocates for change, there is no proponent. A public policy debate involving all levels of government is required to resolve the conundrum.**

The 'managed wetland' irony is that **although the intent of the new land use pattern is to provide for a 'sustainable environment', the proposals such as Concept D or E still rely on the construction and maintenance of significant protective infrastructure works**, such as drainage infrastructure, lake bed

armouring, etc. Therefore the 'managed wetland' alternative land use pattern should not be considered as a return to completely natural processes in the area, but rather would rely on significant infrastructure, just as the existing agricultural and residential land uses now require, albeit to a somewhat lesser extent and with significantly reduced risk and liability should they fail.

4.3. The public policy debate: the solution lies here.

The objectives of the proposed alternative land use concepts emphasize things like:

- Increasing biodiversity and ecological integrity;
- Supporting migratory birds and native wetlands;
- Increasing recreational opportunities in the region;
- Increasing preservation probabilities for species at risk;
- Increasing tourism in the regional economy, especially birding and eco tourism;
- Preserving PPNP marsh and wetlands and enhancing them by creating a hydraulic connection and reducing or eliminating water pollution;
- Supporting ERCA's target for increased green cover of Essex County.

The Municipality of Leamington is NOT the driving force behind any of these public policy objectives. However, there are a number of possible benefits of a new land use regime that do relate directly to the Municipal interests, such as:

- reduce Municipal risk and potential liability;
- reduce resident and property owner risk and liability;
- balance capital resources in accordance with existing capital plans;
- avoid large tax increases;
- avoid large drainage scheme benefit assessments.

On the other side of the argument, the disbenefit of the alternative land use arrangement is that there is major upset and disruption to existing property owners and residents who have made life-long investments as well as personal and business plans based on the status quo. This disbenefit is not readily quantifiable.

5. CONCLUSIONS:

- 1) The Municipality of Leamington does not have and will not have the financial wherewithal to sustain the status quo land uses in the area, to comply with either the relevant Provincial standards or to carry out the identified protective works as required by modern engineering standards to mitigate risk.
- 2) The Municipality is reluctant to impose the financial burden on the drainage scheme participants that would be required for the required works if they were implemented under the Drainage Act, and does not have the financial wherewithal to carry the related financial debt for such work.
- 3) Therefore a future change in land use should be supported by the Municipality, although the reasons are related to financial capability not environmental reasons; the Municipality should keep itself open to possible land use changes (such as parkland or open space or managed wetland).
- 4) The extent of the possible land use changes would be determined by the proponent, and would need to be examined at the time any proposal was received; proposals could be similar to Concept D or E but might also be somewhat larger or smaller in scope; the specific planning and infrastructure implications of each would need to be examined as proposals are developed.

The final configuration may depend upon the objectives and/or resources of whatever senior government or third party agency becomes the sponsor for any change in land use.

- 5) Significant capital costs still need to be incurred in order to transform the area into a 'managed wetland' whatever its size and configuration, and there will be ongoing maintenance costs as well; these costs would be borne by the proponent of the changed land uses.
- 6) Such a transition will not happen overnight and so in the meantime there is risk, to both the property owners and the Municipality, associated with either maintaining status quo without infrastructure upgrades, or holding off on the upgrades that might be required for an alternative land use, while in transition.
- 7) Information to date indicates that senior governments are not going to support a funding request for maintaining the status quo land uses but Council could consider one 'last ditch' request to this end.
- 8) If no funding is forthcoming to maintain the status quo, then discussions should be held with the Federal and Provincial Governments to determine a public agency or partnership (e.g. Parks Canada, MNR, MOE, ERCA, etc.) to sponsor such a change and take the lead in whatever processes are needed to move forward, such as Environmental Assessments, rezoning applications, property acquisitions, construction or reconstruction of needed infrastructure, and ongoing maintenance in the area.
- 9) At the same time there may be third party private sector groups, such as Ducks Unlimited or the Caldwell First Nation, who might also be invited to submit an expression of interest in the area; this type of process could occur as a partnership with a senior level of Government, for example Parks Canada or an affiliated agency.
- 10) If Council decides to maintain the status quo, there is a need to invest in the infrastructure (more or less immediately, within the five year capital plan), along the lines of the engineering reports for the East Marsh Drainage Scheme (aka Hillman) Dyke, the Marentette Drainage scheme (per the PPPSEMS) and the Road C reconstruction; the first step in this process would be to transform requirements for the East Marsh, Marentette, and Lloyd Drainage Schemes into engineer's reports under the Drainage Act, and to commence the required EA process for the Road C improvements and other projects as required.
- 11) Although it is somewhat speculative, the 'doomsday scenario' of what might occur if no infrastructure investments are made to support either the status quo or an alternative land use scenario such as Concept D or E, should be contemplated. What seems to be most likely if no infrastructure improvements are made, is that the entire study area will continue to deteriorate and be subject to gradual demise over time, along the lines of what is now occurring in the area between Wheatley and Hillman Marsh, where regular flooding events occur engulfing the shoreline residential land uses. Eventually, over time, such flooding events will become more frequent and intense, and create untenable conditions for the property owners and residents in the entire study area, making the properties unusable. Under this 'doomsday scenario', property owners could lose at least some if not all of their equity or investment in their properties.

In summary, the difficult conclusion is that the Municipality of Leamington cannot afford the cost to maintain the status quo, and cannot afford to take the risk of potential liability to its residents and property owners if the infrastructure is not upgraded in accordance with modern engineering standards.

This conclusion is made not on the basis of 'environmental sustainability' but rather on the basis of the fact that the area is not 'economically sustainable' in the current fiscal reality of the Municipality of Leamington; thus the driving force for change is not really the 'environment', but rather the 'economics', or more specifically, the 'costs'.

Because the 'do nothing alternative' will not achieve any of the environmental or economic goals and objectives of any public policy set over the long term, senior governments and/or private agencies whose goals and objectives align with the environmental and ecological potential in the area should be invited to come forward as a proponent to initiate the process for changes in land use.

6. THE WAY FORWARD:

Fundamentally there are two paths that Council may choose as the way forward, and these are:

Option 1: maintaining the status quo land uses of the Official Plan, and

Option 2: supporting a significant change in land uses such as open space or managed wetlands.

Option 1: If Council wishes to maintain the status quo, Council should confirm its existing Official Plan and land use policies in the study area and implement the following action plan in order to prepare for a five year implementation period:

- Prepare an Engineer's report under the Drainage Act for repairs and improvements to the East Marsh Dyke, along the lines of the East Marsh Drainage Scheme Dyke Assessment Report (Nov 2008)
- Prepare and Engineer's report under the Drainage Act for repairs and protection of the Marentette Drainage Scheme along the lines of the PPPESEMS (April 2010)
- Prepare and Engineer's report under the Drainage Act for repairs and protection of the Lloyd Drainage Scheme along the lines of the PPPESEMS (April 2010)
- Commence an Environmental Assessment process for Road C improvements along the lines of the Concession Road B and C Improvements report (Nov 2008)
- Further investigate the jurisdictional responsibilities for the design and construction of a cobblestone berm in Lake Erie from Wheatley Harbour to PPNP

Option 2: If Council accepts that a change in land use in the study area is supportable, Council should confirm that its existing Official Plan and land use policies are not sustainable, and set in motion a way of finding out whose long term objectives can best be served by becoming a proponent for a new land use pattern, and simultaneously which agency or group has the financial resources to acquire land and develop it in a way that would meet their objectives.

For example, the senior governments who are responsible for the above noted list of public policy initiatives could be invited to come forward and commence an action plan to implement the necessary changes in the area to achieve their public policy objectives. Private groups could also be encouraged to come forward with a comprehensive plan. The Municipality's role would be one of processing applications for changes to the Official Plan, reviewing and applying relevant municipal policies, processes and standards to facilitate same.

7. FINANCIAL IMPACT:

Option 1:

Based on the estimates contained in the studies summarized above, the capital cost of Option 1 would be in the order of \$35M for repairs to the East Marsh, Marentette and Lloyd Drainage Scheme dykes and related infrastructure, as well as the reconstruction of Road C, as follows:

- \$8 to \$10M in direct capital expenditure (depending on the elevation of Road C) for the Municipality;
- \$12.5M for the private property owners as beneficiaries in the drainage schemes, and
- \$12.5M jointly funded by private property owners, drainage scheme participants, the Municipality and possibly other senior government partners, the lakebed armouring in Lake Erie between Hillman Marsh and PPNP

Preparatory work would include Engineer's reports under the Drainage Act for the protective works for three drainage schemes (which may need to be expanded to include Federal environmental Assessment compliance), and an Environmental Assessment for the Road C improvements. Preliminary cost estimates for the various reports follows:

Drainage reports (costs assessed to the Drainage scheme beneficiaries):

East Marsh - \$50,000

Marentette - \$100,000

Lloyd - \$25,000

Road C Environmental Assessment - \$100,000

Waste Water Treatment alternatives - \$50,000

A report back to Council on all of these items is recommended prior to 2011 budget deliberations.

Further discussions are recommended on the lakebed armouring project to determine jurisdictional and financial responsibilities; the scope of this review should include the entire shoreline from Wheatley Harbour to PPNP.

Option 2:

Ongoing maintenance of the drainage schemes will still be required for some period of time (i.e. until a proponent comes forward and Official Plan amendments are facilitated) if council chooses Option 2. This work would be similar in scope and budget to past years, as long as progress is made towards an alternative land use plan in a five year time frame, since the reports indicate that changes are needed within that time frame in order to avoid the wholesale costs of Option 1. An engineering study is recommended to determine specific maintenance needs, especially for the dykes and roads in the study area, with a cost estimated at \$50,000.

The financial impact to the Municipality would depend on the area involved, and the size and scope of the proposed changes. It is recommended that a review of the Official Plan and related planning policies be undertaken in preparation for changes, with a cost estimated at \$50,000.

A more comprehensive ongoing monitoring program along the East Marsh, Marentette and Lloyd dykes, such as the installation of ground water level and geotechnical monitoring equipment, should be implemented. Report DCS 06-08 previously reported on an ERCA proposal in this regard; the cost is estimated at \$100,000 to review alternatives, recommend and install such equipment along the dykes of the three drainage schemes.

8. RECOMMENDATIONS:

OPTION 1: MAINTAIN EXISTING LAND USES:

That Council confirm its existing land use policies for the South East Leamington Study Area as contained in Leamington's Official Plan (By-law 794-07);

And that Council confirm its commitment that the study area is sustainable for continued agricultural and residential use;

And that Council authorize Administration to report back with recommended, terms of reference, time lines, consultants and study cost estimates for Council approval prior to 2011 budget deliberations, for the following:

1. Engineering reports under the Drainage Act for:
 - repairs and improvements to the East Marsh Dyke, as described in the East Marsh Drainage Scheme Dyke Assessment Report (Nov 2008)
 - repairs and protection of the Marentette Drainage Scheme as described in the PPPESEMS (April 2010)
 - repairs and protection of the Lloyd Drainage Scheme as described in the PPPESEMS (April 2010)
2. An Environmental Assessment process for Road C improvements along the lines of the Concession Road B and C Improvements report (Nov 2008);

And that Council request Administration to report back with details concerning the process required for the design and construction of a cobblestone berm in Lake Erie from Wheatley Harbour to Point Pelee National Park, including jurisdictional and financial responsibilities;

All as described in report DCS 01-10

OPTION 2: EXISTING AREA LAND USES NO LONGER SUSTAINABLE:

That Council confirm its existing land use policies for the South East Leamington Study Area as contained in Leamington's Official Plan (By-law 794-07) are no longer sustainable;

That Council advise the Federal and Provincial Governments, Ministries and agencies, and that public notice be given, that the Municipality of Leamington will initiate discussions about the implementation of a sustainable land use concept in Southeast Leamington between Hillman Marsh and PPNP, including discussion about financial resources to support proposed changes;

That Council authorize Administration to report back with recommended terms of reference, time lines, consultants, and study cost estimates for Council approval prior to 2011 budget deliberations, for the following:

- a groundwater and geotechnical monitoring system along the East Marsh, Marentette, and Lloyd Drainage Schemes;
- a report on possible amendments to the Municipality's Official Plan to provide for sustainable land uses in the study area;
- an engineering study on short term maintenance needs for the dykes, roads and municipal infrastructure in the study area;

All as described in report DCS 01-10

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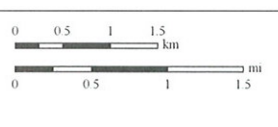
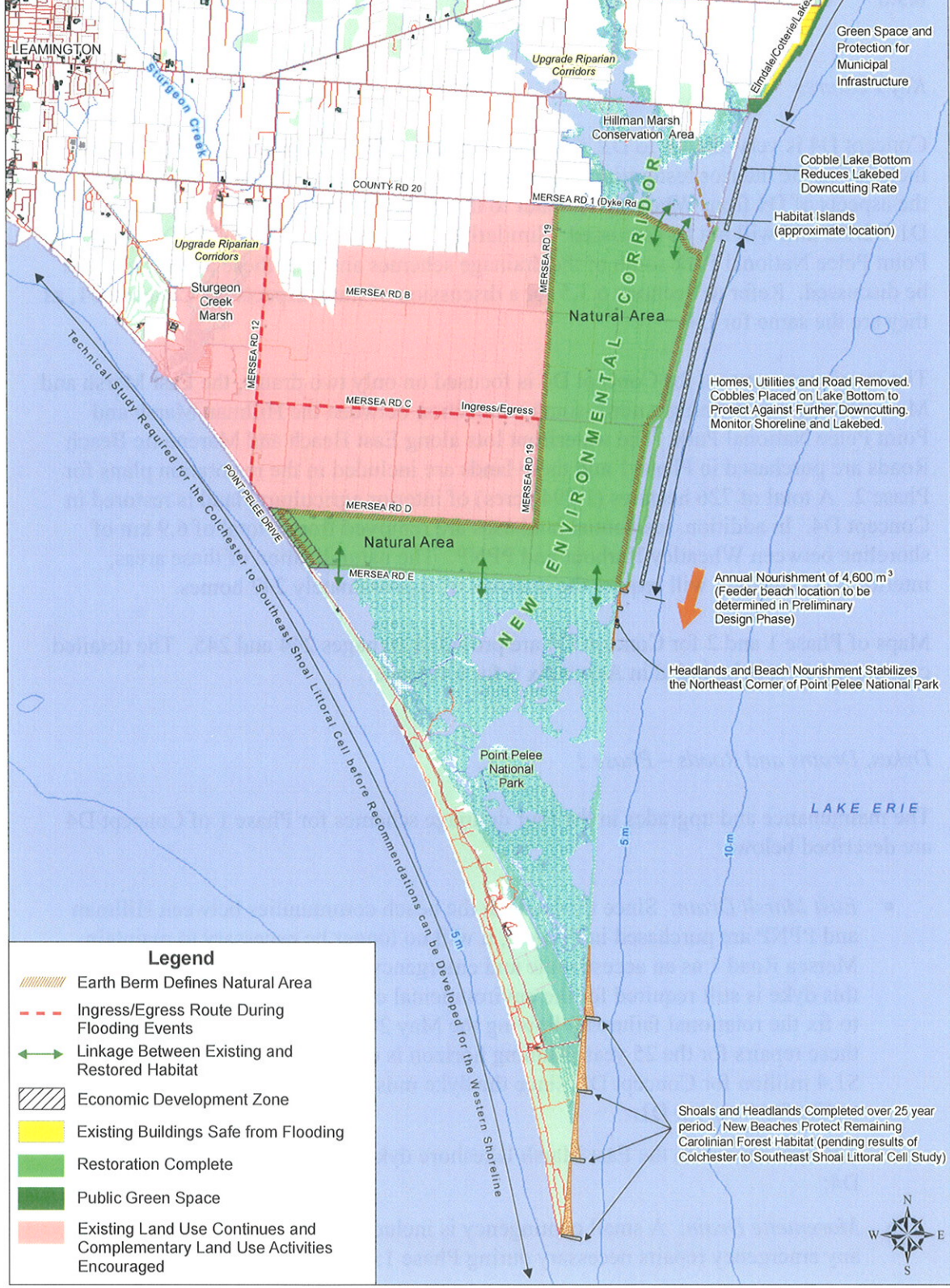
Signed: _____
John D. Tofflemire, P. Eng.
Director of Community Services

FILE: T:\Community Services\Community Services\Community Services Council Reports\2010 Reports

Summary Table of Land Acquisition and Restoration for Concept D3

Bio-Physical Zone ¹	Homes Removed ²	Length of Shoreline (m)	Acres Restored	Hectares Restored
4 - Pulley to Elmdale ³	92	2,500		
6 - East Beach	58	2,600		
7 - Marentette Beach	51	1,800		
8 - East Marsh Drain	44		1,146	464
9 - Marentette Drain	2		648	262
Portion of West Marsh Drain (D1-D2)				
11 - Lloyd Drain	69		508	206
Total	316	6,900	2,302	932

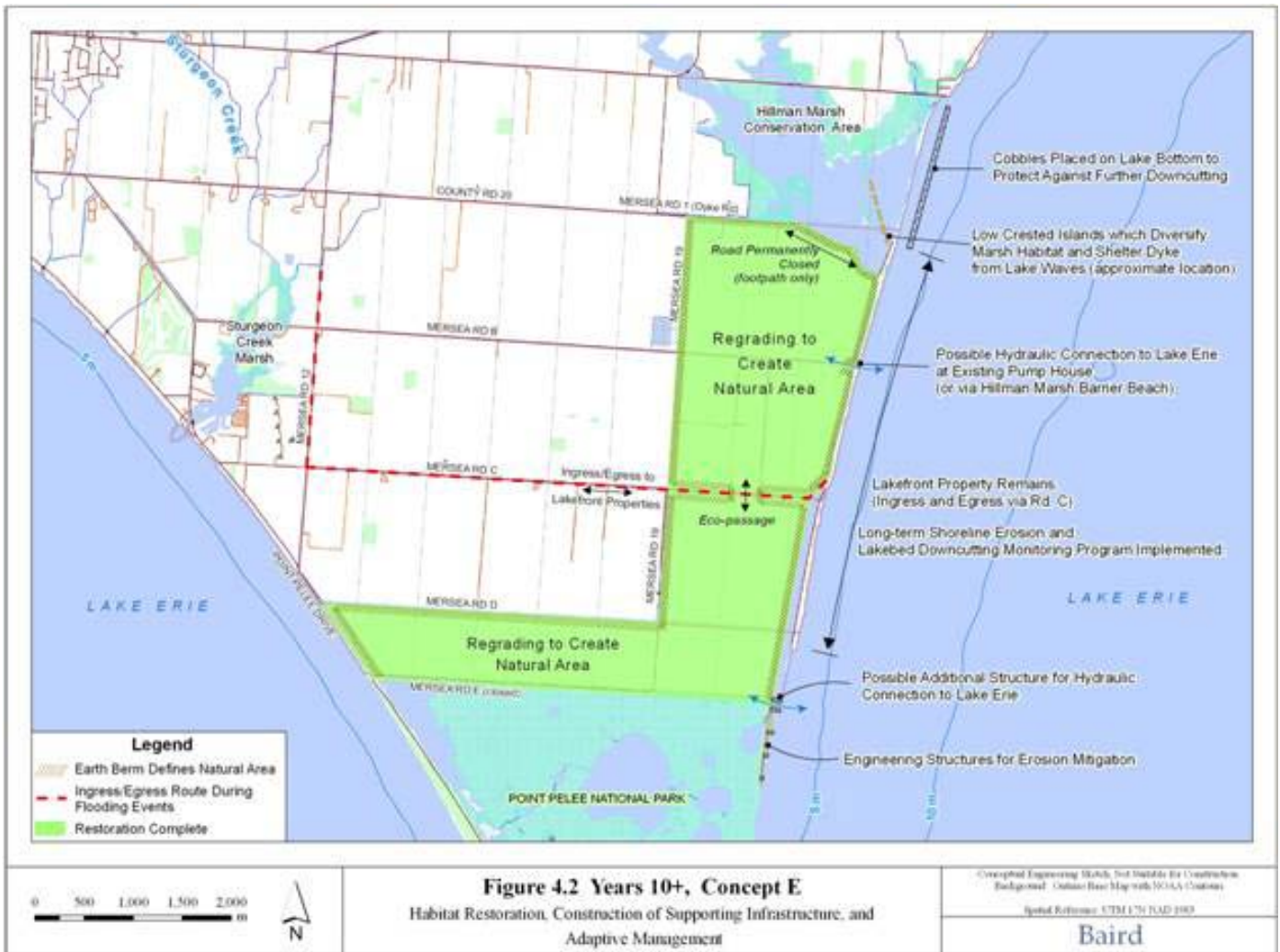
¹ Refer to Figure 1.18 of the main report for a map of bio-physical zones
² Approximate number of homes based on drive-by survey
³ Only homes on east side of Pulley, Lakeshore and Cotterre acquired. All of Elmdale subdivision acquired

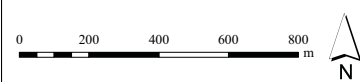
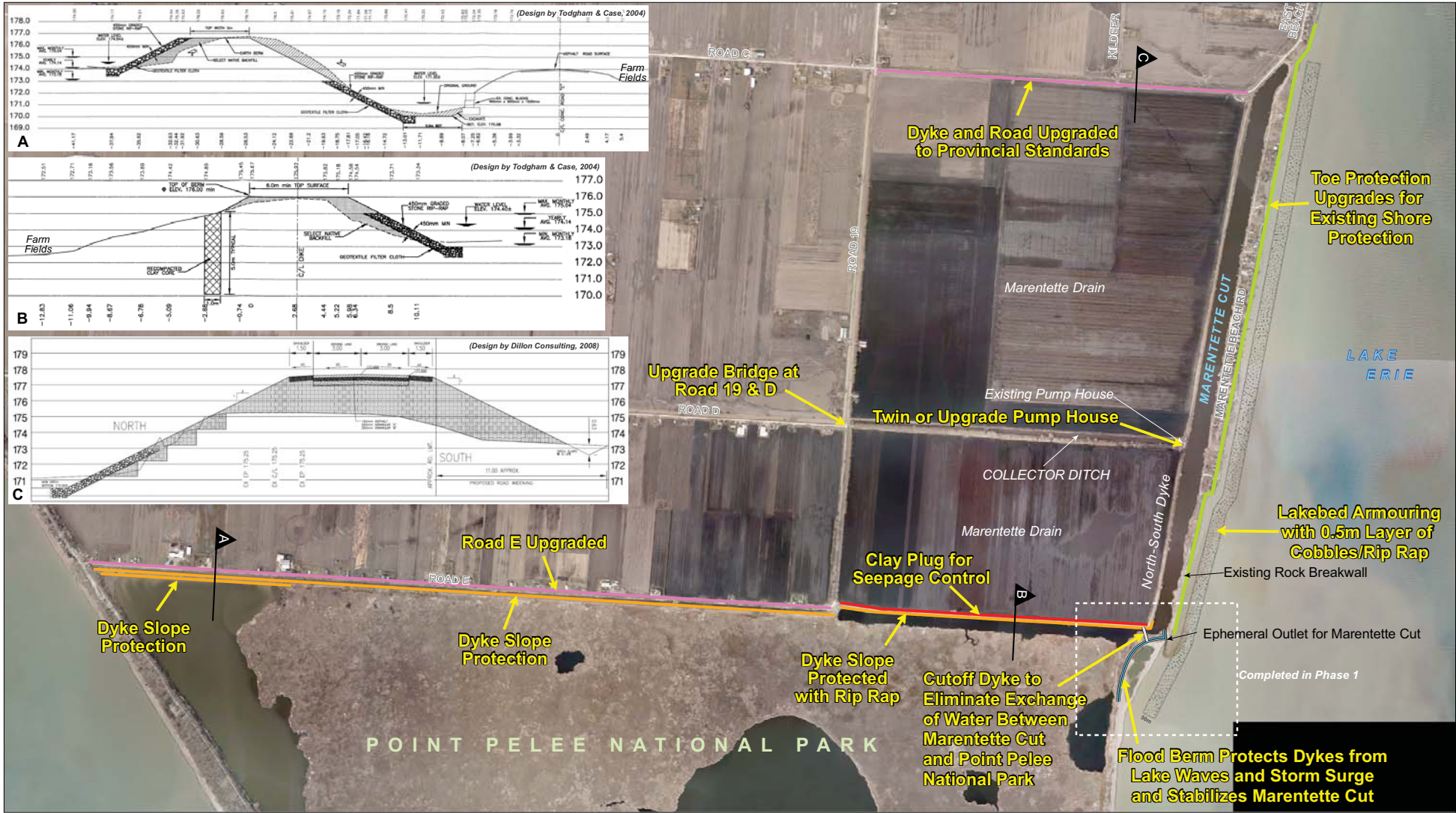
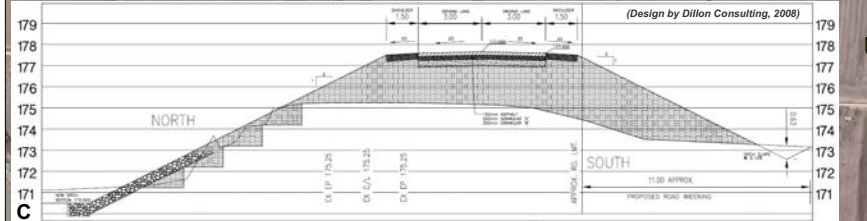
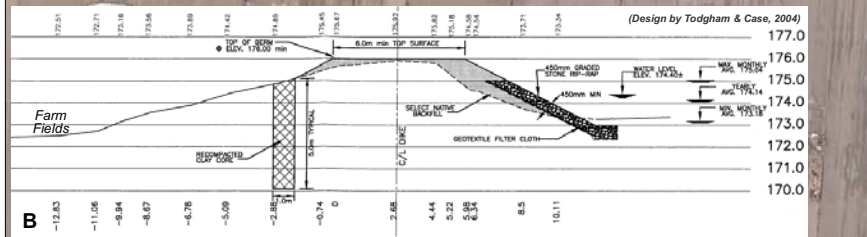
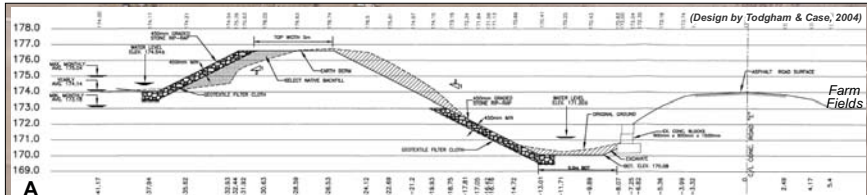


CONCEPT D3 - PHASE 2
ENVIRONMENTAL CORRIDOR FOR EAST MARSH, MARENTETTE
AND LLOYD DRAINS PLUS SHORELINE RESTORATION
(5+ YEARS)

Conceptual Engineering Sketch. Not Suitable for Construction
 Background: Ontario Base Map with SOAA Contours
 Spatial Reference: UTM 17N NAD 1983

Baird





Phase 2 - Interior Infrastructure Repairs

Drainage Scheme Upgraded to Provincial Standards

Imagery: April 2008 Orthophoto Mosaic.
 Used with the expressed permission of The Corporation of the County of Essex.
 Spatial Reference: UTM 17N NAD83

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