EXECUTIVE SUMMARY

On behalf of Mr. Henry Rempel and the City of Prince George, L&M Engineering Limited is pleased to present the proposed Airport Light Industrial Plan (ALIP) for consideration by Prince George City Council. This Plan was initiated in October of 2007 by Prince George City Council's decision to consider the area as the future Light Industrial land base for the City of Prince George in recognition of the lack of light industrial land available within the City. The Industrial Land Strategy identifies the area as the potential, future light industrial land base for the City of Prince George pending the outcome of the technical reports and land use recommendations contained within this plan. The ALIP is reflective of the City of Prince George’s goal to maximize the economic potential associated with the expansion of the Prince George Airport, as well as to position itself as the regional transportation and distribution centre for the region. In addition, this planning document is a proactive approach to ensuring that long range land use and infrastructure planning is in place to facilitate the growth and economic diversification of the city while promoting the protection of the environment and air quality, respect for existing surrounding development, as well as fiscal responsibility with regard to infrastructure expenditures.

We would like to thank the City of Prince George for their technical support with respect to existing policy and infrastructure considerations, as well as Triton Environmental Consultants Ltd, Geonorth Engineering Ltd, RWDI Consulting Engineers and Scientists, and Ecofor Natural and Cultural Resource Consultants for their professional contributions to this land use plan.

THE VISION

The vision of the Airport Light Industrial Plan is to create the future light industrial land base and a significant employment node within the City of Prince George while demonstrating environmental leadership and providing an integral component of the future diversification of the city’s and region’s economy as the Province of British Columbia’s northern transportation centre. The Airport Light Industrial Lands will be designed with: natural systems; respect for surrounding existing and historical land uses; consideration of transit and alternative transportation options; and consideration of Best Management Practices with respect to on site landscaping and building design. The vision of the Airport Light Industrial Plan recognizes that Prince George has the opportunity to create a world class logistics and light industrial area and that design within the plan boundary is to reflect that world class opportunity.
THE PROCESS

The Airport Light Industrial Plan is intended to be a holistic document that establishes broad land use, transportation, infrastructure, and implementation policies to guide development over time. It is intended to provide surety for the public, decision makers, and developers regarding how the land can be developed and, accordingly, the technical investigations informing the ALIP include:

- Environmental Overview,
- Geotechnical Overview,
- Air Quality Analysis,
- Archaeological Overview,
- Transportation Network Analysis,
- Land Use Analysis, and
- Servicing Overview.

In addition, the planning process has also included consultation with government agencies, including: the Regional District of Fraser Fort George; the Ministries of Environment; Transportation; and Tourism, Sport and the Arts; the Department of Fisheries and Oceans; as well as the Lheidli T’enneh and the Nazko First Nations. In addition, consultation with identifiable interest groups, such as PACHA, PGAIR, the Prince George Airport Authority, and residents of Gunn Road was also conducted. The opinion of the public was sought through one city-wide public meeting held on July 3, 2008, as well as through survey forms available at the meeting, and on the City’s, as well as L&M Engineering’s web sites.

THE PLAN

The Airport Light Industrial Plan integrates the policies of the Official Community Plan, the Major Street Network Plan, the Trails Master Plan, and the Industrial Land Strategy. Based on the technical evaluations described above, the Airport Light Industrial Lands can be developed as the future, fully serviced light industrial land base for the City while respecting the environment, air quality, and surrounding land uses.

The plan permanently protects 324 hectares of land or 28% of the area for environmental, geotechnical, and habitat considerations and its location minimizes impacts to the community’s sensitive air shed. In addition, the location of the property creates the opportunity to improve the City’s overall transportation network by connecting Highway 16 East to Highway 97 South. The improved transportation network will reduce the amount of heavy traffic traveling through the community further reducing pollutants within the “bowl” area of the City. Finally, development within the Airport Light Industrial Lands is the catalyst for the exploration of alternative development standards for roads and storm water management; green building design; alternative energy systems; and enhanced Development Permit Design guidelines.
CONCLUSION

On behalf of Mr. Rempel and the City of Prince George, L&M Engineering Limited is very pleased to present the Airport Light Industrial Plan to Prince George City Council and appreciates Council's consideration.

Sincerely,

L&M ENGINEERING LIMITED

[Signatures]

Heather Oland, MSc, MCIP
Director of Planning

Terry A. Fjellstrom, P.Eng.
Principal

Jason R. Boyes, P.Eng.
Associate
TABLE OF CONTENTS

1. Introduction
   1.1. Airport Light Industrial Plan Overview .......................................................... 2
   1.2. The City of Prince George Light Industrial Planning Process ......................... 4
       1.2.1. The Industrial Land Study ..................................................................... 4
       1.2.2. The Airport Light Industrial Planning Process ..................................... 4
       1.2.3. Public Participation .............................................................................. 5
   1.3. Prince George and Economic Development .................................................. 6
       1.3.1. Examples of Light Industrial Logistics Parks ........................................ 6

2. Current Land Uses ................................................................................................ 8
   2.1. Land Use Policy and Regulations .................................................................. 8
       2.1.1. Light Industrial OCP Policy ................................................................. 8
       2.1.2. Significant Slope OCP Policy ............................................................... 9
       2.1.3. Rural Resource OCP Policy .................................................................. 9
   2.2. Surrounding Land Uses .................................................................................. 10
       2.2.1. Public Institutional ............................................................................... 10
           2.2.1.1. Prince George Airport ................................................................. 10
           2.2.1.2. Prince George Youth Custody Centre ....................................... 11
           2.2.1.3. Schools ....................................................................................... 11
       2.2.2. Residential Land Uses ....................................................................... 11
       2.2.3. Commercial Land Uses ................................................................... 12
       2.2.4. Industrial Land Uses ....................................................................... 12
       2.2.5. Open Space, Parks, Trails and Recreation ............................................ 13
   2.3. Road Network .................................................................................................. 13

3. Airport Light Industrial Plan ................................................................................. 15
   3.1. Vision of the Airport Light Industrial Plan ..................................................... 15
       3.1.1. Alternative Forms of Energy ............................................................... 16
   3.2. Natural Environment and Environmentally Sensitive Areas ......................... 16
       3.2.1. Municipal, Provincial, and Federal Government Policies .................... 17
       3.2.2. Wetland and Riparian Areas .............................................................. 18
           3.2.2.1. Fish and Fish Habitat ................................................................. 19
           3.2.2.2. Wetlands ................................................................................... 19
       3.2.3. Geotechnical & Topography ............................................................... 20
       3.2.4. Vegetation ......................................................................................... 20
       3.2.5. Wildlife Habitat ............................................................................... 21
       3.2.6. Air Quality ....................................................................................... 21
       3.2.7. Archaeology ..................................................................................... 22
       3.2.8. Natural Environment and Environmentally Sensitive Area Policy
           Recommendations .................................................................................... 23
   3.3. Transportation .................................................................................................. 24
       3.3.1. Road Network .................................................................................... 24
           3.3.1.1. Boundary Road ......................................................................... 25
               3.3.1.1.1. General .............................................................................. 25
               3.3.1.1.2. Design Standards – Boundary Road .................................. 25
               3.3.1.1.3. Topography – Boundary Road .......................................... 25
               3.3.1.1.4. Alignment Selection Criteria – Boundary Road .............. 25
           3.3.1.2. Johnson Road ............................................................................. 26
           3.3.1.3. Johnson Road – General ............................................................ 27
               3.3.1.3.1. Design Standards – Johnson Road .................................. 27
               3.3.1.3.2. Topography – Johnson Road .............................................. 27
               3.3.1.3.3. Alignment Selection Criteria – Johnson Road ............. 27
       3.3.2. Alignment Selection Criteria ................................................................. 28
           3.3.2.1. Boundary Road Alignment ......................................................... 28
           3.3.2.2. Johnson Road Alignment ........................................................... 28
       3.3.3. Design Standards .................................................................................... 29
           3.3.3.1. Boundary Road Design Standards ............................................. 29
           3.3.3.2. Johnson Road Design Standards ................................................. 29
       3.3.4. Topography ........................................................................................... 30
           3.3.4.1. Boundary Road Topography ....................................................... 30
           3.3.4.2. Johnson Road Topography .......................................................... 30
       3.3.5. Environmental Considerations ............................................................... 30
           3.3.5.1. Boundary Road Environmental Considerations ....................... 30
           3.3.5.2. Johnson Road Environmental Considerations ......................... 30
3.3.1.2.1. General................................................................. 26
3.3.1.2.2. Design Standards – Johnson Road................................. 26
3.3.1.2.3. Topography – Johnson Road ......................................... 26
3.3.1.2.4. Alignment Selection Criteria – Johnson Road ................. 26
3.3.1.2.5. Standards – Johnson Road ........................................... 27
3.3.1.3. Collector Road .......................................................... 27
3.3.1.3.1. General................................................................. 27
3.3.1.3.2. Standards .............................................................. 27
3.3.1.3.3. Topography ............................................................ 27
3.3.1.3.4. Alignment Selection ................................................ 28
3.3.1.3.5. Road Standards....................................................... 28
3.3.1.3.6. Boeing Road .......................................................... 28
3.3.2. Pedestrian and Trail Network ............................................ 28
  3.3.2.1. Official Community Plan, Pedestrian Network Study, and Trail Master Plan ......................................................... 28
  3.3.2.2. Airport Light Industrial Plan Principles – Pedestrian Network ................................................................. 29
  3.3.2.3. Pedestrian Network Design Guidelines ............................ 30
3.3.3. Cycle Network .............................................................. 32
  3.3.3.1. Official Community Plan and Cycle Network Policies ......... 32
  3.3.3.2. Airport Light Industrial Plan Principles – Cycle Network ... 32
  3.3.3.3. Cycle Network Design Guidelines ................................. 33
3.3.4. Transit Network ............................................................ 33
  3.3.4.1. Airport Light Industrial Plan Principles – Transit Network ... 34
  3.3.4.2. Transit Network Design Guidelines .................................. 34
3.3.5. Transportation Network Policy Recommendations ............... 35
3.4. Industrial Land Use .......................................................... 36
  3.4.1. Official Community Plan Policies ...................................... 36
  3.4.2. Airport Light Industrial Plan Principles ............................. 36
  3.4.3. Land Use and Allocation ................................................ 37
  3.4.4. Development Permit Areas and Design Guidelines ............. 38
  3.4.5. Industrial Land Use Policy Recommendations .................... 40
4. Industrial Servicing ............................................................ 42
4.1. Water System ................................................................. 42
  4.1.1. Introduction .................................................................... 42
    4.1.1.1. Scope of Analysis .................................................... 42
    4.1.1.2. Reference Documents .............................................. 42
    4.1.1.3. Modeling Software .................................................. 42
    4.1.1.4. Existing System Overview ........................................ 43
  4.1.2. Design Criteria ............................................................ 43
    4.1.2.1. General ............................................................... 43
    4.1.2.2. Equivalent Population ............................................. 43
    4.1.2.3. Per Capita Water Demands and Peaking Factors .......... 44
    4.1.2.4. Service Pressures .................................................... 44
    4.1.2.5. Fire Protection Requirements ................................... 44
  4.1.3. Design Population ........................................................ 45
  4.1.4. Water Demands ............................................................ 46
4.2. Sanitary Sewer System ...................................................... 46
  4.2.1. Introduction ............................................................... 46
  4.2.2. Servicing Overview ....................................................... 47
  4.2.3. Background Reports ................................................... 47
    4.2.3.1. 2001 Sanitary Sewer Study – McElhanney Consulting Services Ltd. .......................................................... 47
    4.2.3.2. 2004 Blackburn Wastewater Flow Diversion - Dayton & Knight Ltd. ......................................................... 48
  4.2.4 Existing Sanitary Sewer Infrastructure ................................ 48
4.2.4.1. Gunn Road ............................................................................................... 48
4.2.4.2. Boeing Road .......................................................................................... 49
4.2.4.3. Continental Way .................................................................................... 49
4.2.5. Study Methodology .................................................................................. 49
4.2.6. Catchment Areas ..................................................................................... 49
4.2.7. Equivalent Population .............................................................................. 50
4.2.8. Flow Calculations .................................................................................... 50
  4.2.8.1. Pipe Design Criteria ......................................................................... 50
  4.2.8.2. Domestic Average Daily Flow .............................................................. 50
  4.2.8.3. Groundwater Infiltration and System Inflow Component (I&I) .............. 51
  4.2.8.4. Peaking Factor .................................................................................. 51
  4.2.8.5. Design Sewage Flow ......................................................................... 51
    4.2.8.5.1. Airport Light Industrial Plan (ALIP) Area .................................. 51
    4.2.8.5.2. Blackburn Area ...................................................................... 53
4.2.9. Preliminary Sanitary Trunk Main Plan/Profiles .......................................... 53

4.3. Storm Water Management ......................................................................... 53
  4.3.1. Introduction ............................................................................................ 53
  4.3.2. Overview ................................................................................................ 54
  4.3.3. Catchment Area .................................................................................... 54
  4.3.4. Regulatory Process ................................................................................ 54
  4.3.5. Performance Targets ............................................................................ 54
  4.3.6. Methodology and Analysis .................................................................... 55
    4.3.6.1. Existing Storm Water Network .......................................................... 55
    4.3.6.2. Model Selection .............................................................................. 55
    4.3.6.3. Rainfall Information ........................................................................ 56
    4.3.6.4. Model Input Parameters .................................................................. 56
      4.3.6.4.1. Runoff Curve Numbers (CN) ...................................................... 56
      4.3.6.4.2. Times of Concentration ............................................................... 56
      4.3.6.4.3. Model Parameters ...................................................................... 56
      4.3.6.4.4. Storage Concept ....................................................................... 57
  4.3.7. Model Results ........................................................................................ 57

4.4. Phasing of Development ........................................................................... 58

4.5. Industrial Servicing Policy Recommendations .......................................... 58

5. Implementation ............................................................................................ 59
List of Tables

Table 1: Land Use Summary........................................................................................................... 16
Table 2: Minimum Service Pressures.............................................................................................. 44
Table 3: Minimum Recommended Fire Flows..................................................................................... 45
Table 4: Water Servicing Design Populations................................................................................... 45
Table 5: Water Servicing Design Flows............................................................................................ 46
Table 6: Sanitary Design Flows and Populations.............................................................................. 52
Table 7: Preliminary Trunk Main Sizing............................................................................................ 52
Table 8: Storm Flows and Storage Volumes..................................................................................... 57

List of Cross Sections

Cross Section 1: Proposed Industrial Collector Road ................................................................. 30
Cross Section 2: Proposed Industrial Arterial Road Divided.......................................................... 31

List of Figures

F1: Context Plan
F2: Existing OCP Light Industrial Land Use Designations
F3: Existing OCP Land Use Designations
F4: Noise Exposure
F5: Aerial Photo
F6: Existing Topography & Hydrography
F7: Proposed Major Roads
F8: Existing Services
F9: Archaeological Overview
F10: Environmental Overview
F11: Geotechnical Overview
F12: Proposed Land Use Plan
F13: Water Servicing Plan and Design Flows
F14: Sanitary Catchment Plan and Design Flows
F15: Preliminary Sanitary Trunk Main Plan & Profile
F16: Storm Water Catchment Plan and Design Flows

Appendices

Appendix A: Environmental Overview
Appendix B: Geotechnical Overview
Appendix C: Air Quality Analysis
Appendix D: Archaeological Overview
Appendix E: Newspaper Advertisement
Appendix F: Rural Mailbox Flyer
Appendix G: Distribution Areas
Appendix H: Public Participation Mail-Out Package
Appendix I: Summary of Public Survey Comments
Appendix J: References