

Impacts of Wetlands on Land Development

A review of costs, risks, and unintended consequences

Agenda

- **Definitions**
 - Wetland Disturbance
 - Development Activities
- **Myths, Legends, and Unicorns**
- **Financial Considerations for Developers**
- **Development Financing 101**
- **Case Study – Wetland Retention**
- **Why does this matter?**

Definitions

- **Wetland Disturbance**
 - Any works that infill, alter, or physically drain a wetland, including any impact to riparian area and buffer strips, and any type of interference with the hydrology to and from the wetland

Definitions

- **Development Activities**
 - Land development includes altering the landscape in any way including:
 - Changing landforms from a natural or semi-natural state for a purposes such as agriculture or housing
 - Construction of critical infrastructure such as roads, bridges, underground infrastructure, and stormwater management.
 - Subdividing real estate into lots, typically for the purposes of building homes, and commercial or industrial buildings
 - Development activities can be undertaken by private corporation or municipality

Myths, Legends and Unicorns

- Saving a wetland is always the right decision, and the big-picture economics support retention
- Natural wetlands are the highest and best land use decision in a development context
- Revenue gained from the sale of residential lots adjacent to natural wetlands offset the costs of retaining the wetland
- There are no long-term costs associated with the long-term retention of natural wetlands

Financial Considerations for Developers

- **Market Conditions**
- **Off-Site Levies**
- **Homeownership Policies (i.e. mortgage rules)**
- **Wetlands**
- **Provincial/Municipal Approvals**

Impacts of Wetlands on Projects

- **Approvals:**
 - Additional cost (compensation, delays, municipal infrastructure)
 - Loss of revenue (avoidance)
- **Construction:**
 - Redundant infrastructure
 - Restricted construction timelines
- **Maintenance:**
 - Non-standard landscape/infrastructure maintenance
 - Quantifying the value of natural assets
 - Risk of utilizing natural assets (green) instead of engineered systems (grey)

Development Financing 101

- Majority of land purchases are financed.
- 50% cash / 50% loan – due to long project timelines
- Average Quarter Section Cost (Edmonton) = \$24,000,000
- Interest Rates (PRIME + 1-3%) = 4.95% - 6.95%
- Interest on a Quarter Section = \$594,000 - \$834,000 / yr
- Additional financing / loans used to fund approvals, off-site levies and construction.
- Stages 1-2 revenue used to pay off loans.
- Stages 3-4 are where a project may become cashflow positive (10-15 years) if things go well.

What are the impacts of delays?

- ROI and payments schedules are the measure banks use when evaluating their investments.
- Delays make banks nervous.
- May require re-negotiation of loan terms w/ additional equity put into the project.
- Bank could force the sale of land to recover interest.
- Contractors only honour prices for 1 year – quotes don't decrease in future years.
- Municipal Competition- Project A may make half as much profit as Project B, but if the timeline is less than half it is likely the better investment and therefore more successful project.

Case Study

- Large municipality, with a population of ~200,000 in the South Saskatchewan Basin
- Seeking to diversify tax base to include residential, commercial, and industrial development
- Private developer approaches the City with an a plan for a residential community
- The subject lands include a large wetland complex
- City requires developer to retain the wetland post-development
- Developer works together with City to ensure long-term sustainability of wetland



Process

- Identify wetlands on site, including boundary extents and classification
- Work together with City to define development goals for the site
- Outline municipal requirements for approvals
- Identify provincial requirements for approvals

Assessment

- **Biological Assessment**
 - Wetland delineation, classification
 - Natural areas assessment, wildlife monitoring (1 year)
- **Hydrological Assessment**
 - Pre-development catchment modeling
 - Post-development stormwater modeling
 - Hydro-period assessment (1 year)
- **Geological Assessment**
 - Geotechnical assessment
 - Hydrogeological assessment
 - Groundwater monitoring (1 year)

Planning





Design

- **Wetland Management**
 - Riparian restoration
 - Integration of open space and anthropogenic uses
 - Operations management
 - Integration with stormwater management facility
- **Stormwater Management**
 - Master Drainage Plan
 - Staged Master Drainage Plans
 - Pond Report
- **Engineering Design**
 - Road layout
 - Community layout
 - Grading to sustain wetland integration
 - “Back up” infrastructure

Approvals

- **Municipal Approvals**
 - Technical reports
 - Engineering design - infrastructure
 - Stormwater management plans
 - Land use plans
- **Provincial Approvals**
 - EPEA
 - Water balance calculations
 - Requirements for water licensing
 - Water Act
 - Wetland Policy
 - Assessing “disturbance”, requirement for compensation
 - Stormwater re-use in natural wetland
 - Ability to meet existing Directives
- **Timelines – Additional 2-6 years over “standard” design**

Direct Costs

- **Cost of assessment (~\$300,000-\$500,000)**
- **Cost of design (~\$400,000-\$1,500,000+)**
- **Cost of time for non-standard approvals process (2-6 years)**
- **Cost of construction (~2-4% more than “typical” project)**
- **Cost of maintenance and monitoring (minimum 4 years)**
- **Long-term maintenance**

Indirect Costs

- **Lost Opportunity Costs**
- **Cost of Innovation**
- **Cost of Resolution**
- **Cost of Uncertainty**

Risks

- Time, and process
- Uncertainty
- Additional technical studies and assessments
- Process complexity and variability
- Doing "the right thing" isn't always easy
- Long-term sustainability

Impact to Development

- Retaining wetlands increases timelines due to additional requirements for assessment, design, and monitoring
- Additional costs of assessment, design, monitoring
- Costs of financing increase
- Risk of project rejection increases
- Risks of project abandonment and land sterilization increase
- Total project costs may result in development not proceeding, or development moving to another location or municipality
- Extra costs passed on to consumer, leading to affordability concerns

The image features a central red speech bubble with a white outline and a downward-pointing tail. Inside the bubble, the text is written in white. The background consists of several concentric circles and curved lines, some solid and some dashed, in a light gray color, creating a sense of depth and movement.

Why does this matter?
How do the costs of land
development affect me??

Housing Affordability

- **Financing requirements result in costs being downloaded to eventual home buyers**
- **Increased development costs = increased housing costs**
- **A \$10,000 increase to a \$300,000 home removes 20,000 families from the market**
- **New costs and pressures coming from multiple areas (mortgage rules, levies, wetlands, building code)**

HOUSING IN ALBERTA

	80% of Median Household Income	Approved mortgage	Eligible Households
ALBERTA	\$75,068	\$339,600	61%
EDMONTON	\$75,557	\$341,700	61%
CALGARY	\$79,666	\$360,500	61%
GRANDE PRAIRIE	\$84,444	\$382,200	62%
RED DEER	\$68,635	\$310,500	61%
LETHBRIDGE	\$59,267	\$268,200	61%
MEDICINE HAT	\$58,244	\$263,600	60%
FORT MCMURRAY	\$156,524	\$708,300	63%
COLD LAKE	\$88,460	\$400,200	64%

Jobs and Investment

- Longer approval timelines = increased financing charges (\$1,000,000 / year)
- Jobs put at risk (construction, offices, retail, etc.)
- Increased costs impact either ROI or affordability
- Reduced ROI directly influences a company's ability to receive financing
- Lack of predictability discourages investment
- Lack of investment reduces municipal tax base

CONSTRUCTION JOBS in Alberta



35%

Residential



20%
Engineering



17%
Oil Sands



16%
Industrial
Commercial
Institutional



12%
Non-Residential
Maintenance

29,457

New housing starts – a key to economic growth in our province.

63,898

On-site and off-site jobs in new home construction, a major source of employment in Alberta.

\$4.3

Billion in wages – that show up in purchases across the entire provincial economy.

\$10.5

Billion in investment value – the largest single wealth-builder for most families.

Costs to Municipalities

- Long term maintenance, operations, and lifecycle costs
- Land sterilization, leading to “leapfrogging” of infrastructure and development
- Staff time – review and approvals
- Long-term maintenance costs and legal obligations (passed on through municipal taxes)
- Operations of natural/engineered systems to keep wetlands viable
- Current gap in the system – unable to quantify value of natural assets (therefore maintenance not funded)
- Lost investment and future tax base

Minimizing Unintended Consequences

- What are we worried about?
 - Land sterilization, leading to “leapfrogging” of infrastructure and development
 - Affordable housing
 - Long-term maintenance costs and legal obligations (passed on through municipal taxes)
 - Integrated wetlands being unsustainable due to over-management of risk (cost of managing the system over time)

An Ideal Regulatory Environment

- Requirements for assessment clearly outlined in Provincial guidelines and directives.
- Policies aligned to allow developers to “do the right thing”
- Standardized scope of work for assessment, design.
- Predictable timelines = predictable financing costs
- Clearly defined approvals process
- Decreased risk with increased process predictability

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Questions, Comments and
Discussion