An Exploration of the Freight Village Concept and its Applicability to Ontario
• What is a Freight Village?
• Applicability to GTHA
• Other types of Logistics Centres
The Problem

• Freight Villages an answer to a problem
  – Private:
    • Land and transport needs
    • Returns to scale in freight flows
    • Pursuit of value-added and profitability
  – Public:
    • Congestion
    • Other freight externalities
    • Economic growth and competitiveness
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<th>Logistics Centre</th>
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<td>1</td>
<td>Air Cargo Port</td>
<td>Leitner &amp; Harrison, 2001</td>
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<td>UNCTAD, 1991</td>
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<td>Boile et al., 2008</td>
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24. Inland Port (UNECE, 2001)
25. Inland Port (Rodrigue et al., 2010)
26. Inland Terminal (UNCTAD, 1982)
27. Intermodal and Multimodal Industrial Park (Boile et al., 2008)
28. Intermodal Freight Centre (Cardebring & Warnecke (1995))
29. Intermodal Rail-Road Terminal (Roso & Lumsden, 2009)
30. Intermodal Terminal (UNESCAP, 2009)
31. Load Centre (Notteboom & Rodrigue, 2009)
32. Logistics Centre (EUROPLATFORMS, 2004)
33. Logistics Centre (Meidutė, 2005)
34. Logistics Centre (Rimienė & Grundey, 2007)
35. Logistics Node (Rimienė & Grundey, 2007)
36. Maritime Feeder Inland Port (Leitner & Harrison, 2001)
37. Nodal Centres for Goods (Tsamboulas & Dimitropoulos, 1999)
38. Satellite Terminal (Notteboom & Rodrigue, 2009)
39. Satellite Terminal (Slack, 1999)
40. Seaport (Dooms & Macheris, 2003)
41. Trade and Transportation Centre Inland Port (Leitner & Harrison, 2001)
42. Transfer Terminal (Wiegmans et al., 1999)
43. Transmodal Terminal (Notteboom & Rodrigue, 2009)
44. Transport Terminal (Rimienė & Grundey, 2007)
45. Urban Consolidation Centre (BESTUFS, 2005)
46. Urban Distribution Centre (de Cerreño et al., 2008)
47. Warehouse (Rimienė & Grundey, 2007)
Varieties of Logistics Centres

- **3rd Level: Gateway Cluster**
  - Mainport Terminal
  - Freight Village

- **2nd Level: Freight Transportation & Distribution Cluster**
  - Inland Port
  - Intermodal Terminal

- **1st Level: Warehousing & Distribution Cluster**
  - Inland Container Depot / Distribution Centre
  - Container Yard / Warehouse

**Diagram showing the relationship between warehouse, distribution centre, intermodal terminal, freight village, inland port, and mainport terminal.**
• What is a Freight Village?
  – Intermodal transfer point located at nexus of modes: road, rail, sea, air
  – Freight consolidation
  – Rationalized freight land use
  – Greenfield
  – Promotion of synergies
  – Value-added services
• Opened 1971 as ‘Autoporto Bologna’
  – Partnership
    • Local/Provincial government
    • Chambers of Commerce
    • Road haulage associations
  – Promote intermodality, relieve congestion in city
• Interporto Bologna in 1973
  – Bring in rail
  – Begins ops in 1974
  – 10 years to build out of Phase 1
• 12km from city
• Customs, secure access, post office, banks, gas station, maintenance, restaurant, shared tracking service
• PPP
  • 52% public
  • Private: banks, insurance, Chamber of Commerce, transport associations
• Entrepreneurial management – real estate, promotion, consulting
• Magnet for 3PL firms
• 20 acres of landscaping
Varieties of Logistics Centres

- 100 firms as of 2005
- Over last decade, many couriers
  - Changing operations to 3PL
- 4.5m tonnes of goods in 2005
  - Nearly 50-50 truck and rail (6,000 trains)
  - 25% of goods for Bologna, 75% to rest of Italy/EU
  - Packaged food, beverages, raw materials, finished machinery
  - No fresh produce
  - Urban distribution reduces trucks in city by est. 55,000

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<tr>
<th>Sector</th>
<th>Number of Tenants</th>
<th>Avg. Size of Warehouse (m²)</th>
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<tr>
<td>Couriers</td>
<td>26</td>
<td>38,000 (409,000 ft²)</td>
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<tr>
<td>Logistics Operators</td>
<td>18</td>
<td>11,000 (118,400 ft²)</td>
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<tr>
<td>Freight Forwarders</td>
<td>18</td>
<td>1,700 (18,300 ft²)</td>
</tr>
<tr>
<td>Transport Agents</td>
<td>8</td>
<td>500 (5,380 ft²)</td>
</tr>
<tr>
<td>Customs and Services</td>
<td>N/A</td>
<td>20,000 (215,280 ft²)</td>
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Varieties of Logistics Centres
Varieties of Logistics Centres

- Oldest and highest performance in Germany
- Desire to reduce truck traffic
- Taken decades to build out
- 490 acres for future expansion
- Truck maintenance, gas station, customs, restaurant
- Auto parts, food, aerospace, logistics, urban goods mvmt.
Raritan Center

- Slow evolution into FV
- Brownfield (2350 acre former military site, 15000 employees)
- Community integrated (hotels, retail)
- 391 T&L firms
- 9 million sq. ft. industrial space
- Rail assets have been developed (2000s) and marine mode has potential
Raritan Center

- Size (Acres): 2,350
- Employees: 15,000+
- Modes: Road, Rail
- Transp. & Log. Firms: 391

Raritan Center Industrial Park
- 2,350 acres
- 14-million sq. ft. warehousing and distribution space
- 330 companies, 32 Fortune 500 companies including: FedEx, FedEx Ground, UPS, TNT Logistics, Eagle Global Logistics, GE, BASF, Nova Chemicals, INEOS, SABIC, St. Gobain, North Pacific, ConocoPhillips, Basell

Heller Industrial Park
- 700 acres
- 7 million sq. ft. warehousing and distribution space
Varieties of Logistics Centres

- Prime example of community-integrated freight village
- Includes residential, commercial, recreational, institutional land uses
- Sprawls over 17,000 acres and 28,000 employees (most not T&L)
- Management by a strong private sector firm

| Size (Acres): | 17,000 |
| Employees:    | 28,000 |
| Modes:        | Road, Rail, Air |
| Trans & Log. Firms: | 170+ |

Cumulative Number of Companies
Key Attributes of a Freight Village

- Master planned logistics oriented site:
  - co-located and co-ordinated tenants

- Intermodal terminal near:
  - container storage, handling areas, warehouses

- Access to shared facilities, equipment and value added services:
  - e.g. Customs services, foreign trade zone, truck maintenance, conference space, training, services

- Centralized management and ownership
  - Long term planning, investment, governance, environmental management
  - Ideally PPP but strong private participation helps a lot
Freight Village Benefits

• Synergies in logistics processes
  – e.g. haulage, storage, packaging
  – Freight village warehouses more productive

• Synergies/Sharing in infrastructure
  – e.g. Connections to road, transshipment equipment, railway sidings

• Reductions in wasted movements, fewer transport links
  – Internalization of freight movements
  – Regional network of freight villages can extend these benefits further

• Economies of Scale
  – Marketing, T&L expertise, shared investment in technology
  – Incubator for smaller firms

• A firmer basis for coordinated urban distribution

• Benefits encourage intermodal movements

• A boost for inland regions
Freight Villages: Potential Shortcomings

- Mostly related to co-ordination between actors
  - Inappropriate tenants
- Vertical supply chains versus horizontal co-operation
  - North American competitive mindset
  - Many co-located firms do not interact
- Co-ordination between levels of government
- Risk of over-supply: few places are really appropriate
  - Can we all be ‘North America’s Distribution Centre’?
- Not all freight villages have worked out
- Government subsidy/investment may not pay off
General Conclusions/Observations

• Public sector most needed for higher order facilities
  – e.g. PPPs, improving transport, tax incentives, financing, land assembly

• FVs with strong private sector support do better

• FVs bigger and bolder than incremental business parks

• May actually *increase* congestion in the vicinity

• Possible to evolve into a freight village

• Private sector (rail operators, T&L service providers) often receptive to clustering and productivity benefits

• Freight villages friendlier to small firms but benefit from strong anchor tenants
Air-Freight Clusters?

• Most air-freight clusters process relatively small tonnages

• Freight villages exist without air freight

• But very few freight villages exist without rail
  – Some Asian, export-oriented examples
Freight Villages in Ontario

• Freight villages a solution for maximizing the potential of land zoned for freight/industrial uses?

• In theory, could rationalize firm locations and goods movements in GTHA
  – Many industries face transportation problems that result from land-use and location issues - Decreasing returns to scale
  – Promote ‘Freight-Oriented Development’

• Compliments policy and planning initiatives
  – Greenbelt, Places to Grow/Growth Plan, Big Move, etc.
Varieties of Logistics Centres

- 195 Acres
- 1.4M lifts
- 4,000 trucks (area)

1. CN Brampton Intermodal Terminal
2. Canadian Tire Billes Distribution Centre
3. Costco Depot
4. Business Park
5. Goreway Station Power Plant

- 195 Acres
- 1.4M lifts
- 4,000 trucks (area)
Varieties of Logistics Centres

From Transport Canada’s 2010 report on accessibility to intermodal terminals. Since that time, CN is proud to report that congestion and truck dwell times at the terminal have been reduced significantly.
Where?

- Prerequisites for Freight Village Development

**Box 1: Inland Port Recipe—Alliance Style**

1. Base population 3 million
2. Multiple modes
3. 5,000–10,000 acres
4. Tax and other incentives
5. Strong employment base
6. Telecommunications
7. Foreign-Trade Zone status


- Peel, Toronto, and York largest freight clusters in Ontario
- Must be demand not only from government but industry
Varieties of Logistics Centres

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Diagram showing the flow from lower to higher value and functionality:

- **Warehouse**
- **Distribution Centre**
- **Intermodal Terminal**
- **Freight Village**
- **Inland Port**
- **Mainport Terminal**
Varieties of Logistics Centres

- 3,800 Acres
- 400k lifts
- 1,600 trucks
- Major land supply
- Hwy 427

1. CPR Vaughan Intermodal Terminal
2. Canadian Tire
3. SLH Transport
4. Sears
5. Coleraine Business Park
Varieties of Logistics Centres

1. CPR Calgary Intermodal Terminal
2. Dominion Warehousing & Distribution
3. Sears
4. SLH Transport
5. Canadian Tire
6. Consolidated FastFrate
As of 2013, the entire CN Calgary Logistics Park is now fully built-out and occupied.
• PPP – Corporation with public and private members

• Public Infrastructure (all 3 levels of Gov)

• Shared rail facility planned (CN, CPR, CNSF)

• CentrePort Corp. and development partners own half of land
  • Rest owned by farmers

• Competition between business parks keeps land costs low
• 1,700 acres, expropriated and governed by GTH Authority
• Relocation of CP intermodal to 2,000 acre site key
• 250K lift capacity (old 45,000)
• Loblaws DC - 1M sqft, 800 workers
• Potential meat exports through cold chain
• Consolidated FastFrate – 10,000 sqft cross-dock
• Emterra – 45,000 sqft recycling, 80 jobs
• Liquor authority – 145,000 sqft DC
• Public-Private governance
• Metro population 226,000
7 Critical Success Factors

1. Control Land
2. Secure Dedicated Rail Carrier
3. Secure Anchor Tenant
4. Strong Government Support
5. Access to National Highways
6. Proximity to International Airport
7. Education facilities and training programs
Governance of LCs

- **Private Sector**: Calgary Logistics Park
- **Crown corporation**: Global Transportation Hub (Regina)
- **Non-share capital corporation**: CentrePort Canada
- **Not-for-profit economic development agency**: Port Alberta
- **Land use initiative with multiple landowners**: Vaughan Enterprise Zone, Brampton “Airport Intermodal” employment zone.
Freight Villages: Observations for Ontario

• Likely a competitive advantage compared to other regions
• But few places in Ontario appear suited for full FV
  – Very few intermodal terminals to start with and few that meet the “Alliance Texas” criteria
  – Temper expectations – look at other types of freight land uses
• Key Considerations for further exploration
  – Land ownership – zoning versus direct assembly
  – Management – PPP key, master planning
  – Private sector interest and role
  – Impact on regional / localized congestion for goods and people
  – Net economic benefits vs. transportation improvements to existing clusters?
  – Evidence on jobs is mixed
An Exploration of the Freight Village Concept and its Applicability to Ontario
Are Freight Villages a Necessity?

- **Tonne*KM**
  - Note that European examples lag behind in terms of rail (the mode that most benefits from freight villages)

- Consider that GTHA has very well-developed freight clusters without a “proper” freight village
General Conclusions/Observations

• Such development not independent of people movement
• Evidence on jobs is mixed
  – Perhaps more about efficiencies than direct job creation
  – Some freight villages house many jobs, but are they incremental?
• Likely is a meaningful competitive advantage over the region that does not have one
• Timing, site selection and size, master-planning all important
• Overall: sufficient demand, intermodal facility, land
Varieties of Logistics Centres
Policy Tools for Freight Village Development

• Direct Policy Tools
  – Market intervention
    • Some German examples
  – Public Private Partnership
    • Joint development
    • Most common in European examples

• Indirect Policy Tools
  – Infrastructure
    • Roads, utilities, other freight-related transportation infrastructure (runways, intermodal terminal)
      – State of Illinois - $75 Million to CenterPoint Intermodal Center
      – City of Winnipeg/Prov. of Manitoba - $17 Million to service land at CentrePort
Policy Tools for Freight Village Development

• Indirect Policy Tools
  – Financing
    • Public financing of freight villages (Italy)
    • Tax-Increment Financing (CenterPoint, CentrePort)
  – Tax Incentives
    • $125 Million to CenterPoint to develop on brownfield site
    • Low tax rate for conducting business
  – FTZ Status
    • Free Trade Zone designation in US, Foreign Trade Zone in Canada (CentrePort)
  – Land Use and Planning
    • Zoning/protecting areas for freight-related development (e.g. 20,000 acres for CentrePort)
Policy Tools for Freight Village Development

• Indirect Policy Tools
  – Political Support
    • Many freight village projects have benefitted from strong political and public-sector support
    • Inclusive planning process can help
  – Transport Regulation and Subsidies
    • Subsidization of intermodal transport in the EU
  – Transport Taxes and Charges
    • Disincentives such as charges, taxes, and regulations for certain types of transport movements across EU member states
Truck Transportation 2008-2011