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Port Cities Committee / Regional Planning and Agriculture Committee
Joint Meeting Date: June 21, 2012

To: Port Cities Committee / Regional Planning and Agriculture Committee

From: Terry Hoff, Senior Regional Planner
Metropolitan Planning, Environment and Parks Department

Date: June 5, 2012

Subject: **Regional Growth Strategy - Monitoring Industrial Land Supply, Utilization and Demand**

Recommendation:

That the Port Cities Committee and Regional Planning and Agriculture Committee receive for information the report dated June 5, 2012, titled "Regional Growth Strategy - Monitoring Industrial Land Supply, Utilization and Demand".

1. PURPOSE

The purpose of this report is to provide the Port Cities Committee and Regional Planning and Agriculture Committee with a draft monitoring assessment of Metro Vancouver's industrial land supply and future demand. This information will be finalized within an annual Regional Growth Strategy Performance Monitoring Report anticipated year end 2012.

2. CONTEXT

2.1 Overview

With continuing population and economic growth on Metro Vancouver's limited land base it is important to maintain an adequate supply of land to support the vital industrial sectors of the regional economy. Recognizing the importance of industrial lands, Metro's Regional Growth Strategy (Metro 2040), establishes a regional Industrial Land Use Designation as a policy tool to protect the industrial land base, and a set of policies intended to enhance the efficient utilization of the Industrial lands. To support this strategy Metro 2040 in section 2.2.1 has committed to "Monitor the supply of, and demand for, industrial land in the region with the objective of assessing whether there is sufficient capacity to meet the needs of the regional economy".

Following the Metro 2040 mandate, this report provides an initial draft assessment which includes four components used in Metro Vancouver's industrial lands monitoring program:

- Industrial Land Inventory to monitor the industrial land supply;
- Industrial Land Utilization Profile to identify and monitor the types of activities occurring on the industrial lands;

- Industrial Development and Land Demand Scenario Projections to estimate the range of potential industrial land absorption in future years
- Long Term Industrial Land Supply / Demand Assessment to anticipate and evaluate the viability of the current industrial land supply to meet future industrial land demand.

The following sections of this report address each of these components, with a brief summary provided below.

The most recent industrial land inventory was completed in 2010. This inventory identifies all lands designated for industrial use by municipal plans as either developed or vacant. The inventory findings indicated that there are 11,430 hectors of municipally designated industrial land, of which 8,746 hectares (76%) are developed and 2,685 hectares (24%) are vacant (which includes industrial properties current used for residential or agricultural purposes). Of the developed lands, land use activity was categorized by industry sectors (North American Industrial Classification System – NAICS), based on employment, businesses, floor area and land area. The shares of uses vary somewhat in each of the above groupings, but manufacturing, construction, wholesale trade, retail trade and transportation / warehousing sectors are prominent in each.

The inventory of developed lands and current utilization were used as the basis for projecting future land demand. Two scenarios for future industrial development were prepared to estimate a potential timeframe for take up of the existing industrial land supply. Under Scenario 1, where current industrial activity grows in proportion to the region's projected population and employment growth, the land supply would likely be taken up by the mid 2020s. Under Scenario 2, which includes the assumptions under Scenario 1 plus "High Case" growth in international container trade through Metro Vancouver, the land supply would likely be taken up by 2020.

However, both scenarios include numerous variable factors that could affect the timing of supply and demand outcomes. One of the most crucial is the intensification rate of future industrial development – the amount of future growth that can be absorbed through redevelopment, building expansion and higher density forms of development on existing "developed" but under-utilized sites. It is difficult to estimate the intensification potential of the developed industrial lands, but there are many sites throughout the region that are sparsely utilized. As the land supply diminishes, redevelopment pressures on under-utilized lands, intensification rates and the time-frame for available land supply will increase.

It is important to note that there is no absolute formula for projecting future industrial land absorption, and scenario projections should be understood as general estimates based on a given set of indicators. Nevertheless, the scenarios do provide a frame of reference in considering future land use policy.

The industrial land monitoring program is being conducted by Metro staff with assistance from an Industrial Liaison Working Group representing Metro municipalities, Port Metro Vancouver, commercial / industrial real estate brokerage firms, Gateway Council, academia and other affected or interested agencies. Through a series of workshop meetings, the group contributed knowledge and opinions on the industrial land supply and future industrial development in Metro Vancouver. The group provided vital perspective on industrial land drivers, trends and building form which has been applied in preparing industrial demand scenarios.

This report provides an overview of the four industrial land monitoring components and their status in 2010. This information will be assessed and presented annually in the Metro 2040 Performance Monitoring Report.

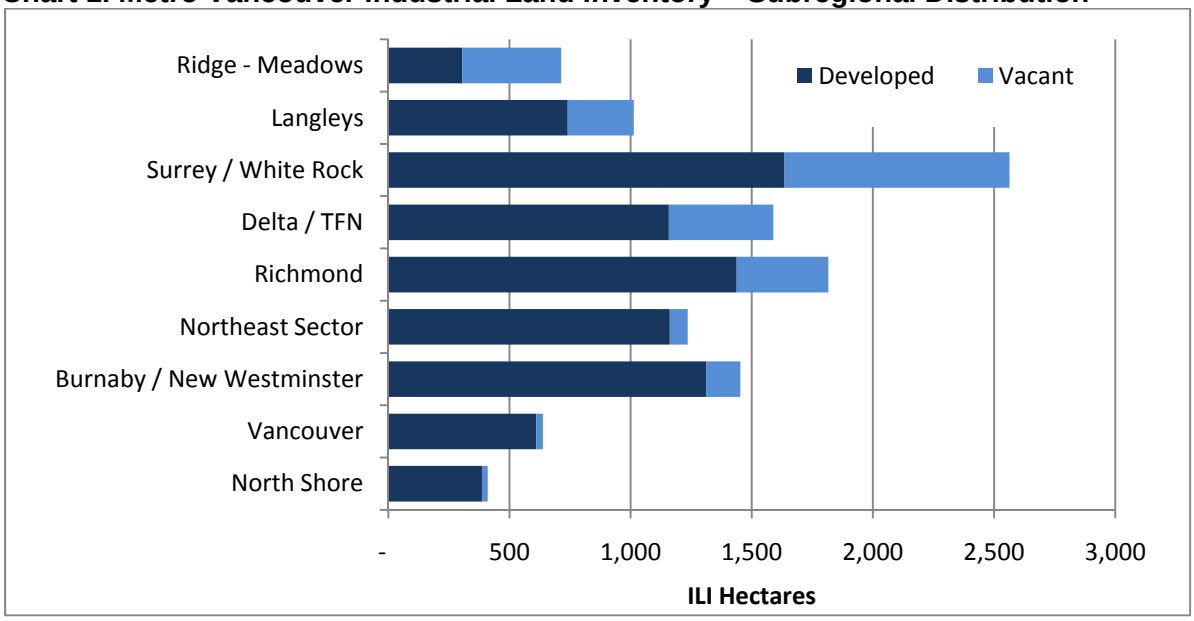
2.2 Industrial Land Inventory 2010 (ILI)

This report contains a brief description of the 2010 Industrial Land Inventory as the basis for preparing the 2010 utilization profile of the developed industrial lands, and to provide an assessment of Metro Vancouver's future industrial land supply / demand scenarios.

Metro Vancouver maintains a parcel based inventory of lands designated for industrial use by member municipalities. The 2010 version of the inventory is an update in the series of industrial land inventory status profiles first prepared in 2005. The inventory classifies industrial land as either developed or vacant, and provides regional and subregional profiles of the industrial land attributes.

The 2010 inventory identifies 11,430 hectares of municipally designated industrial properties in Metro Vancouver. Of this total, about 8,746 hectares (76%) were classified as developed (industrial related development / use activity on the property) and 2,685 hectares (24%) were classified as vacant (not used for industry related purposes, but may be utilized by non-industry related uses such as agriculture or residential). Chart 1 shows the amount and distribution of inventory lands among the Metro municipal subregions, indicating that the majority of undeveloped industrial land is in the South of Fraser municipalities.

Chart 1. Metro Vancouver Industrial Land Inventory – Subregional Distribution



Note: Vacant includes all ILI lands not utilized for industrial related activities, including residential and agricultural uses.

In considering industrial land supply it is important to distinguish that the municipally designated ILI lands are not identical to the Metro 2040 Industrial and Mixed Employment Land Use Designations. In preparing Metro 2040 land designations, the municipal industrial land designations were categorized by municipalities into either the Metro 2040 Industrial, Mixed Employment or Urban land use designations. Of the 11,430 hectares within the ILI,

7,580 hectares (66%) are protected for future industrial development under the Metro 2040 Industrial Designation, and 2,670 (23%) are protected by the Metro 2040 Mixed Employment Designation for future industrial as well as more commercial oriented uses. The remaining 1,180 hectares 11% are located in the Metro 2040 General Urban area or other designation and are subject only to municipal Official Community Plan and zoning regulation. Table 1 shows the status of ILI lands based on Metro 2040 land use designations.

Table 1. Metro 2040 Land Use Designations for ILI Lands 2011

Metro 2040 Designations	ILI Developed (hectares)	%	ILI Vacant (hectares)	%	ILI Total (hectares)	%
Industrial	6,101	70%	1,482	55%	7,583	66%
Mixed Employment	1,670	19%	1,000	37%	2,669	23%
General Urban	814	9%	191	7%	1,005	9%
Other	161	2%	12	0%	174	2%
Total ILI Lands	8,746	100%	2,685	100%	11,431	100%

Consequently, the 11% of ILI lands designated in Metro 2040 as General Urban are not likely to retain current industrial uses in the longer term, and the businesses currently occupying those lands will need to relocate to available industrial lands. Similarly, current industrial uses and vacant lands in the 23% of ILI lands designated in Metro 2040 as Mixed Employment will face future pressures toward commercial oriented development. This may constrain current industrial uses and reduce the viability of future industrial use on some of those lands. Therefore, longer term supply assessment of ILI lands should take into consideration the possibility that ILI lands in the Metro 2040 General Urban areas will be eliminated, and that some portion of the Metro 2040 Mixed Employment areas will be developed as commercial.

Other constraints on the ILI lands include location, established non-industrial uses (residential / agriculture), topography and environmental sensitivity, the availability infrastructure needed for development, ownership patterns affecting land assembly, and a large number of smaller sites that may not be adequate for many types of industrial development. Each of these factors will affect the potential for the ILI supply to meet future demand.

A report titled, *Metro Vancouver 2010 Industrial Lands Inventory (November 2011)*, is available on the Metro Vancouver website, and provides a detailed analysis of the municipally designated industrial land inventory.

2.3 Industrial Land Utilization 2010

The intent of the Industrial Land Utilization analysis is to establish a 2010 baseline profile of the types of business activity occurring on the developed industrial inventory lands, to provide a basis for monitoring future change in the land use activity, and to prepare indicators for projecting future industrial development and land demand. Combining sample data from the British Columbia Assessment Authority with sample employment data from the Census of Canada, and sample business databases obtained from InfoCanada and Statistics Canada, the utilization profile categorizes and quantifies employment, businesses and the related built floor area and land area occupied by each industry sector (NAICS, North American Industrial Classification System).

Employment. Chart 2 shows Metro Vancouver's total employment by Industry Sector, and the component share of sector employment located within the ILI. In 2010 about 310,000 or 25% of Metro Vancouver's estimated 1,250,000 total employment was located within the ILI lands. As expected, jobs in the Manufacturing, Wholesale Trade, Transportation and Warehousing sectors are most prominently located within the ILI, yet a substantial portion of those activities occur outside of the ILI. For example, only 2/3 of manufacturing sector jobs are located within the ILI as administrative aspects of the manufacturing sector, such as finance or marketing, may be located in office facilities in other locations. As well, particular manufacturing sector activities such as smaller commercial bakeries or other food production facilities are located in commercial areas throughout the region.

All economic sectors have some share of Metro employment activity within the ILI whether it be warehouse and distribution facilities for Education, labs or pharmaceutical manufacturing in Health, or software engineering or production facilities in the Arts, Entertainment sector.

Chart 2. Metro Vancouver Employment by Industry Sector 2010

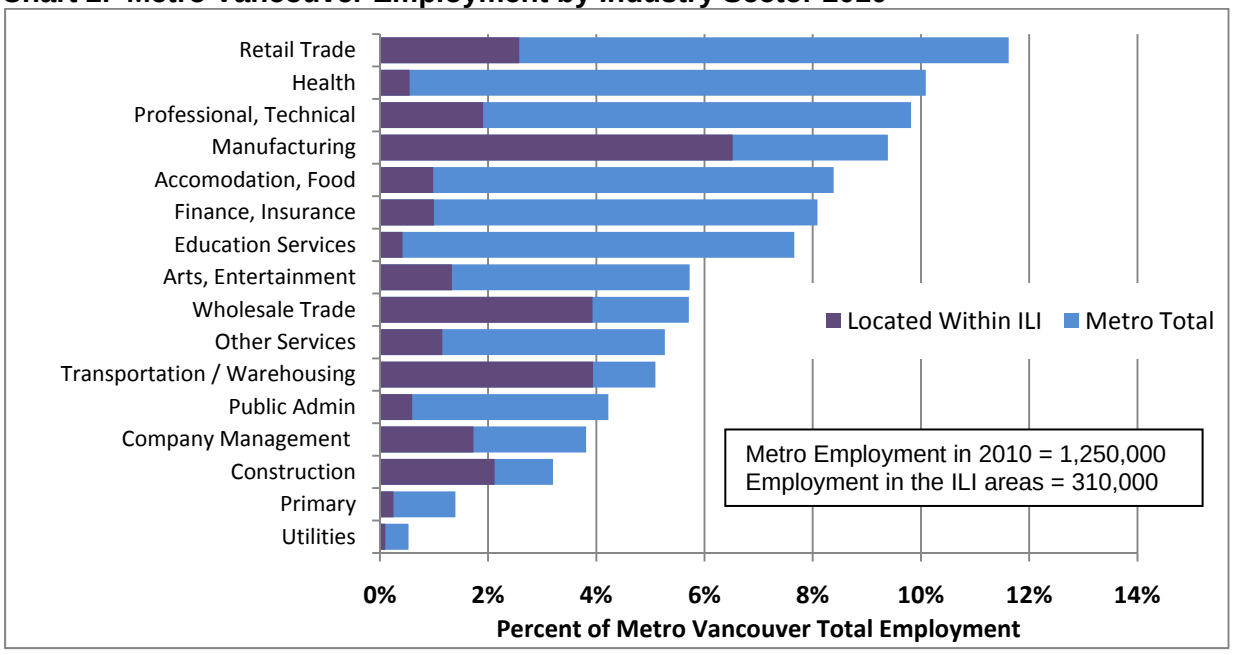


Table 2 shows the relative share of sector jobs within the ILI. Manufacturing sector businesses are by far the most common at 22%, followed by Transportation / Warehousing and Wholesale Trade at 14%, Retail Trade related businesses (9%) and Professional / Technical Services (7%). Jobs from a wide variety of occupations can be included within each sector as many ILI businesses include finance and marketing aspects on site.

Table 2. ILI Employment by Industry Sector 2010

	Total ILI Employment	Share of ILI Total	Share of MV Total
Sector	**310,000**	**100.0%**	**25.5%**
Manufacturing	69,400	22.4%	69.4%
Transportation / Warehousing	41,900	13.5%	77.3%
Wholesale Trade	41,800	13.5%	68.8%
Retail Trade	27,400	8.9%	22.2%
Construction	22,600	7.3%	66.2%
Professional, Technical	20,300	6.5%	19.4%
Company Management	18,400	5.9%	45.4%
Arts, Entertainment	14,200	4.6%	23.3%
Other Services	12,300	4.0%	21.9%
Finance, Insurance	10,700	3.4%	12.4%
Accommodation, Food	10,500	3.4%	11.7%
Public Admin	6,400	2.0%	14.1%
Health	5,900	1.9%	5.5%
Education Services	4,500	1.4%	5.5%
Primary	2,700	0.9%	18.0%
Utilities	1,100	0.3%	19.1%

Note: Employment includes estimate of Census Undercount and allocation of No Fixed Place of Work

ILI Businesses. A sample of Metro Vancouver businesses was obtained and analyzed to estimate the number and type of businesses within the currently developed ILI lands. The results in Table 3 show a relatively even distribution among the major sectors. Construction and Wholesale related businesses are most prominent and take up about 16% of total businesses, followed by Wholesale activities around 15%. Most industrial areas include accessory uses such as restaurants or small scale commercial facilities to serve the daytime working population. Retail uses in the ILI may also include large format building supply / hardware or garden supply facilities that combine warehousing and retail activity. In some municipal jurisdictions land use regulations allow a broader range of commercial and retail uses, or stand-alone office buildings, that may have no direct association with the industrial related sector activity. While there are clearly land uses occurring that could, or should, be located outside of the industrial areas, it is very difficult to distinguish and quantify the extent of such development.

Table 3. Businesses by Sector within the ILI 2010

	ILI Businesses	Share of ILI Businesses	Share of MV Businesses
Business Sector	**21,680**	**100%**	**24%**
Construction	3,550	16%	38%
Wholesale	3,210	15%	53%
Manufacturing	2,430	11%	61%
Prof/Scientific/Tech	2,290	11%	19%
Other Services	2,190	10%	21%
Retail Trade	1,950	9%	20%
Transportation & Warehousing	1,780	8%	52%
Management & Admin	1,270	6%	20%
Finance, Insurance, Real Estate	1,140	5%	13%
Information & Cultural	590	3%	20%
Accommodation & Food	470	2%	8%
Health & Social	410	2%	5%
Primary Industries	200	1%	13%
Education	160	1%	12%
Public Admin	20	0%	14%
Utilities	20	0%	33%

Floor Area and Land Area by Sector. A sample of businesses was linked to BC Assessment Authority property records to estimate the typical amount of built floor area and land area occupied for each sector. Table 4 shows the relative share of ILI developed floor area and land area occupied by each of the sectors. Land use by sector within the ILI varies somewhat from the employment profile as each sector has differing needs and characteristics for employment, building form and land requirement. Sectors such as Construction and Transportation / Warehousing generally require much more land and building space with a comparatively low number of jobs. Whereas, the Professional Technical sector is more job and building intensive requiring less land. Manufacturing and Wholesale Trade sectors fall in between this range.

Table 4. ILI Developed Floor Area and Land Area Estimates by Industrial Activity

Sector	Floor Area Sq Metres	ILI Share	Land Area Hectares	ILI Share
Manufacturing	6,600,000	26%	1,640	26%
Wholesale Trade	4,600,000	18%	1,120	18%
Retail Trade	3,600,000	14%	810	13%
Transportation and Warehousing	2,300,000	9%	570	9%
Construction	2,300,000	9%	630	10%
Professional Technical	1,400,000	5%	300	5%
Finance, Insurance, Real Estate	1,200,000	5%	270	4%
Other Businesses	1,200,000	5%	280	5%
Company Management / Support	600,000	2%	150	2%
Information and Culture	500,000	2%	120	2%
Primary	300,000	1%	80	1%
Accommodation and Food	300,000	1%	70	1%
Health	200,000	1%	50	1%
Public Administration	200,000	1%	50	1%
Education	200,000	1%	60	1%
Utilities	100,000	0%	50	1%
Total	**25,600,000**	**100%**	**6,250**	**100%**

2.4 Industrial Land Demand Projections 2010 - 2041

The intent of this component of the Industrial Land Program is to anticipate future scenarios for Metro Vancouver's industry development and related industrial land use demand. There can be many potential scenarios ranging from very simple to very complex, from business as usual to profound changes in the world economy and trade, or from extensive globalization to regional self-sufficiency. Rather than engage in highly complex and speculative exercises, this assessment is based on two scenarios: first, a proportional increase in the current industrial development; and second, adding a substantial increase in land demand related to "High Case" growth in trade activity through Metro Vancouver ports. These scenarios provide a frame of reference for Metro 2040 land use policy monitoring and implementation decisions.

In Scenario1 – a baseline scenario - it was assumed that future industrial development will be proportional to the growth of Metro Vancouver generally, and there will be no large scale change in the composition of the industry sectors utilizing industrial lands. Future industry growth would expand in proportion to the long term population and employment projections contained in the Regional Growth Strategy.

There is no absolute formula for projecting future industrial development, and projections should be understood as general estimates based on a given set of indicators. The approach to land demand projection in this scenario is based on the 2010 Utilization profile and the relationships / ratios between employment, floor area and land utilization in each sector. Metro Vancouver's employment projections were then used to estimate the corresponding amount of floor area required, and the corresponding amount of land area required. This method assumes that the current relationships between employment, floor area and land area within each industry sector will generally extend into the future. However, this scenario can also consider how variations in these relationships, such as increased levels of technology or building density, would affect land demand. As well, the scenario can consider how the intensification rate – the percentage of future industrial

growth that will be absorbed through the redevelopment of existing developed industrial lands versus vacant lands - will affect future land demand.

In Scenario 2 it was assumed that future demand includes Scenario 1 growth, plus the assumption that there will be a substantial increase in global trade and the volume of container import / export activity occurring through Port Metro Vancouver. The level of demand used in the scenario is based on "High Case" projections for import / export container volumes (TEUs), using projections from the report titled "Preliminary Container Traffic Projections for Port Metro Vancouver: 2011 to 2030", prepared for Port Metro Vancouver in May 2011. This scenario assumes that the existing port facilities would not have significant land expansion demand, and that growth in port container volumes would primarily result in a greatly increased demand for off-dock transportation and warehouse related development on industrial lands.

The method for land demand projection in this scenario was to assume that land demand can be related to the number of import / export containers (TEUs) coming through Port Metro Vancouver and the share of TEU's transloaded within Metro Vancouver. A report prepared in 2008 for the British Columbia Ministry of Transportation titled, "Industrial Land Demand / Supply Study", prepared by the IBI Group, provides a set of assumptions and indicators relating TEU volumes to land required for off-dock warehousing, container storage, trucking and truck storage. These indicators were applied to the "High Case" TEU volumes to provide *order of magnitude* projections in this scenario.

Table 5 below summarizes the projected land demand under both scenarios. Scenario 1 projections suggest that the total demand for industrial land would increase by 1,600 hectares over the next 20 years. As shown in Chart 3, the demand would be relatively consistent with the current industry sector profile within the ILI. As the most prominent sector in 2010, the manufacturing sector would make up the largest share of future development, primarily associated with the proportional expansion of city serving manufacturing activities. Scenario 2, "High Case" import / export activity would require, in addition to the 2,000 hectares from Scenario 1, an additional 900 hectares for a total of 2,500 hectares over 20 years. The additional 900 hectares would be required for warehousing and transportation related land use and development. It is acknowledged that this scenario would create secondary impacts on industrial land demand, but this these land use impacts were not assessed.

Table 5. Projected Industrial Land Requirements 2010 to 2031

Developed Industrial Land	2010	2021	2031	Growth
Scenario 1 – Proportional Growth	6,200	7,100	7,800	1,600
Scenario 2 - High Case Global Import / Export	6,200	7,600	8,700	2,500

Chart 3. Scenario 1 - Projected Industrial Land Demand by Sector 2010 - 2031

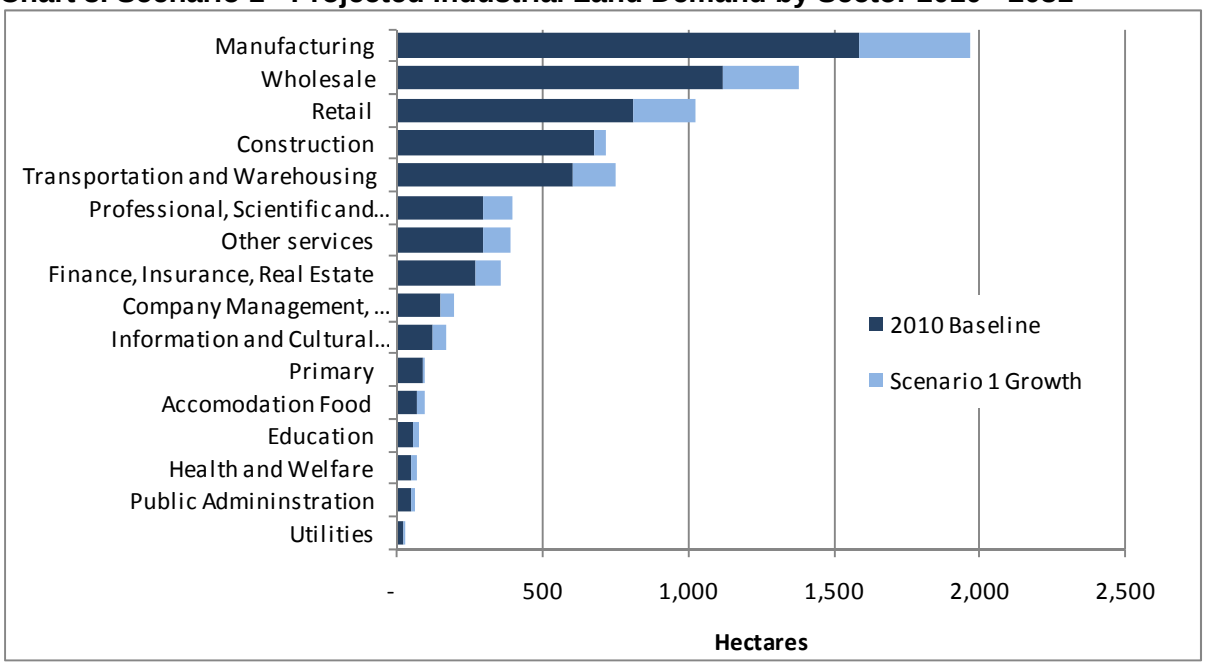
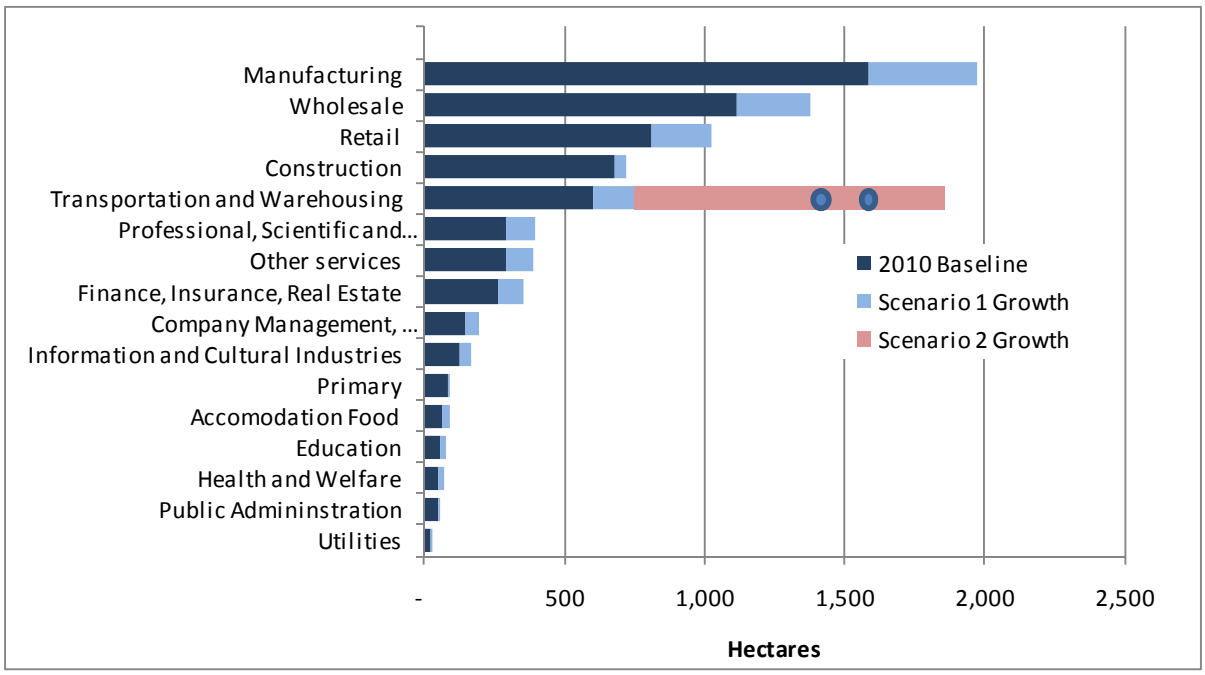


Chart 4. Scenario 2 - Projected Industrial Land Demand by Sector 2010 – 2031



2.5 Assessment of Projected Industrial Development and Land Supply

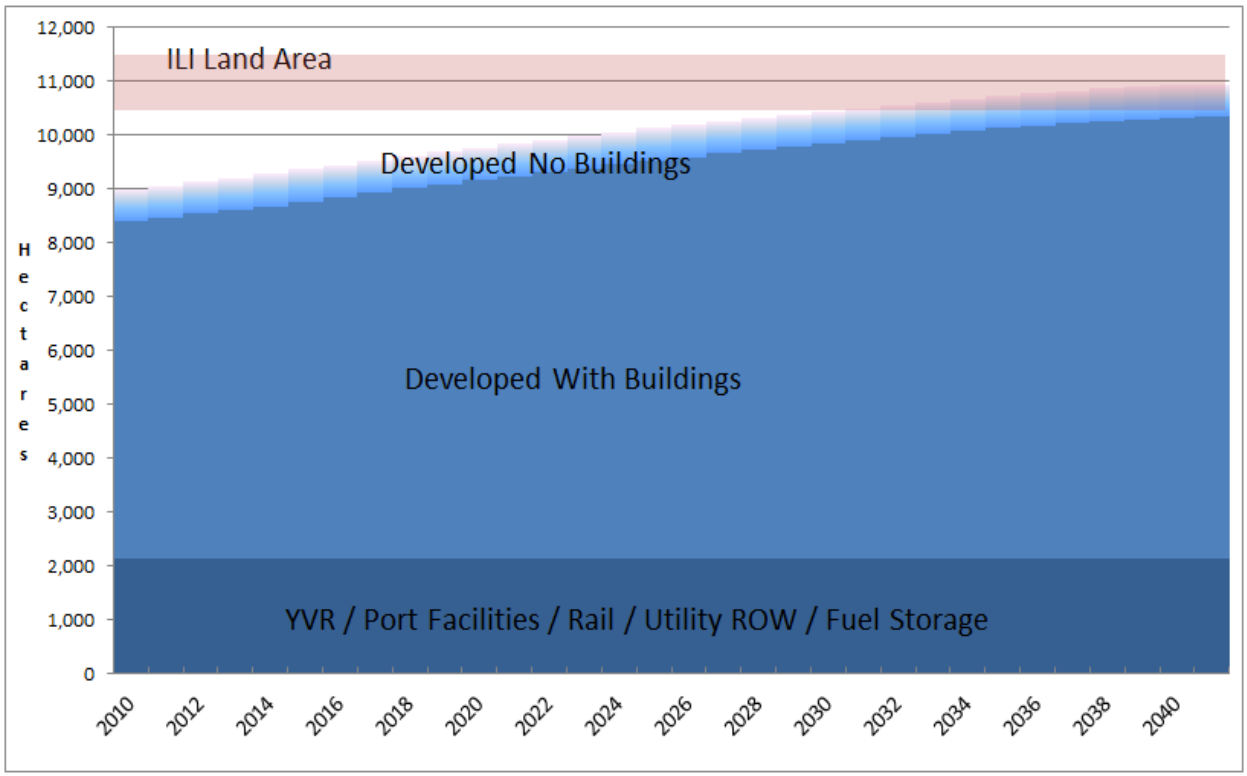
Charts 5 and 6 below provide a comparison of the land demand scenarios with the current industrial land supply. It is important to qualify that there can be no definitive prediction on the future timing of land take-up and remaining supply on industrial land. Both the industrial land supply and the projected demand include many factors that can combine to significantly vary the longer term outlook.

Chart 5 shows the results of Scenario 1. The blue areas of the chart show the amount of currently developed ILI land and projected land absorption to 2031. The darker blue area includes the developed areas within the ILI that are occupied by special purpose / non-market entities such as Vancouver International Airport, Port Metro Vancouver Lands, rail lands and utility rights of way, large scale petroleum storage sites. It is assumed these areas are fixed and will not provide future market related industrial development opportunity. The lighter blue band at the top represents developed ILI lands that have minimal / light storage use, no buildings or structures, and could be available for development.

The red band represents the total industrial land capacity. The total 11,400 hectares includes a buffer of about 1,000 hectares to recognize constraints on industrial development viability. The constraints include RGS Urban or Mixed Employment designation which allows non-industrial development; topographic and environmental constraints; or existing and viable non-industrial use. The buffer also acknowledges that, as the land supply reaches 85-90% saturation, the remaining supply will include smaller, scattered remnant parcels that may not be viable for industrial development due to limited site area or location.

Under Scenario 1, without intensification, industrial demand would require an additional 900 hectares by 2021, and another 700 hectares by 2031. At this rate the land supply could be adequate into the mid 2020s. If a 20%-40% rate of intensification occurs through a combination of redevelopment on existing developed sites, or higher density forms of industrial development, take up of the land supply could be extended to the late 2020s or early 2030s.

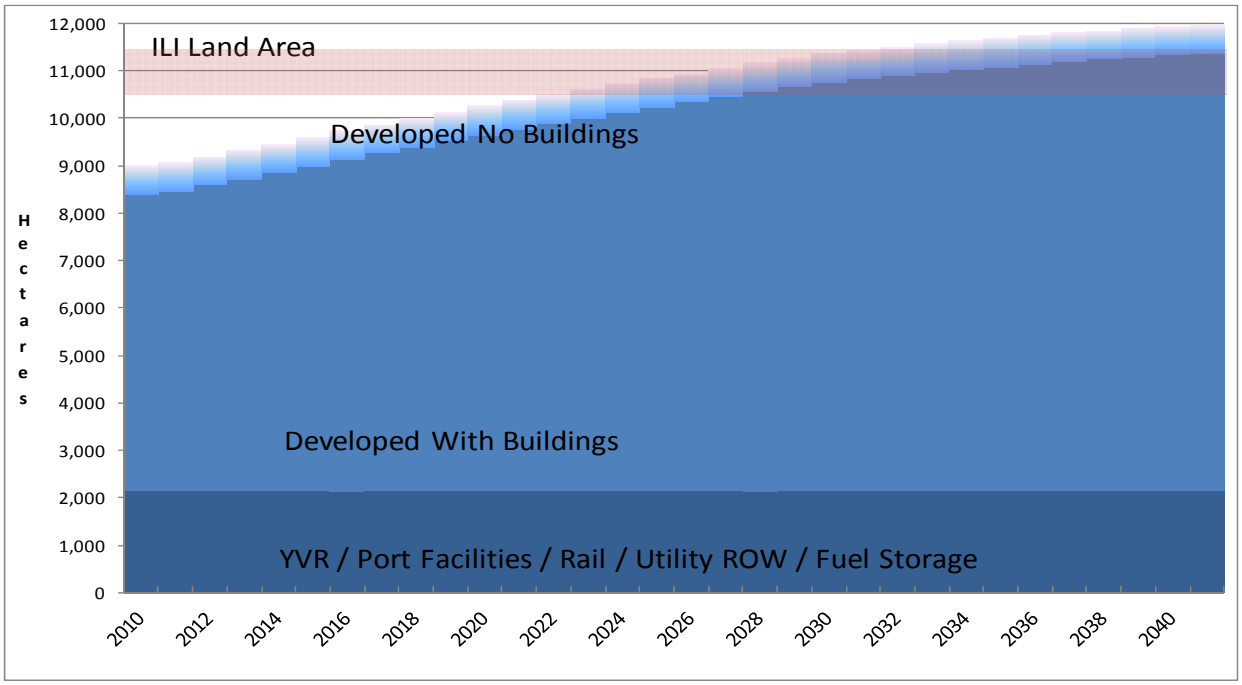
Chart 5. Scenario 1 – Proportional Growth



Under Scenario 2, assuming no intensification, land demand would require an additional 1,400 hectares by 2021, and another 1,100 hectares by 2031. Chart 6 shows that, at this rate, the land supply would be largely taken up by about 2020. As with scenario 1, an increased rate of development intensification can significantly increase the land supply timeframe. However, the type of development under scenario 2 would also involve more particular land demands related to warehousing and transportation use.

Land absorption on the chart assumes all land in the ILI is equally viable for development. A significant qualification under scenario 2 is that the warehousing and transportation land uses would require larger sites and seek strategic locations and access near the major highway routes. As previously noted, as the vacant land supply diminishes the supply of sites becomes more scattered and remnant. Both qualifications will limit the viability of the remaining vacant lands for warehouse and transportation uses. A secondary analysis of the land supply in relation to these specific site requirements has not been done, but should be considered in a more comprehensive assessment of Scenario 2.

Chart 6. Scenario 2 – Base Plus High Case Import / Export Growth

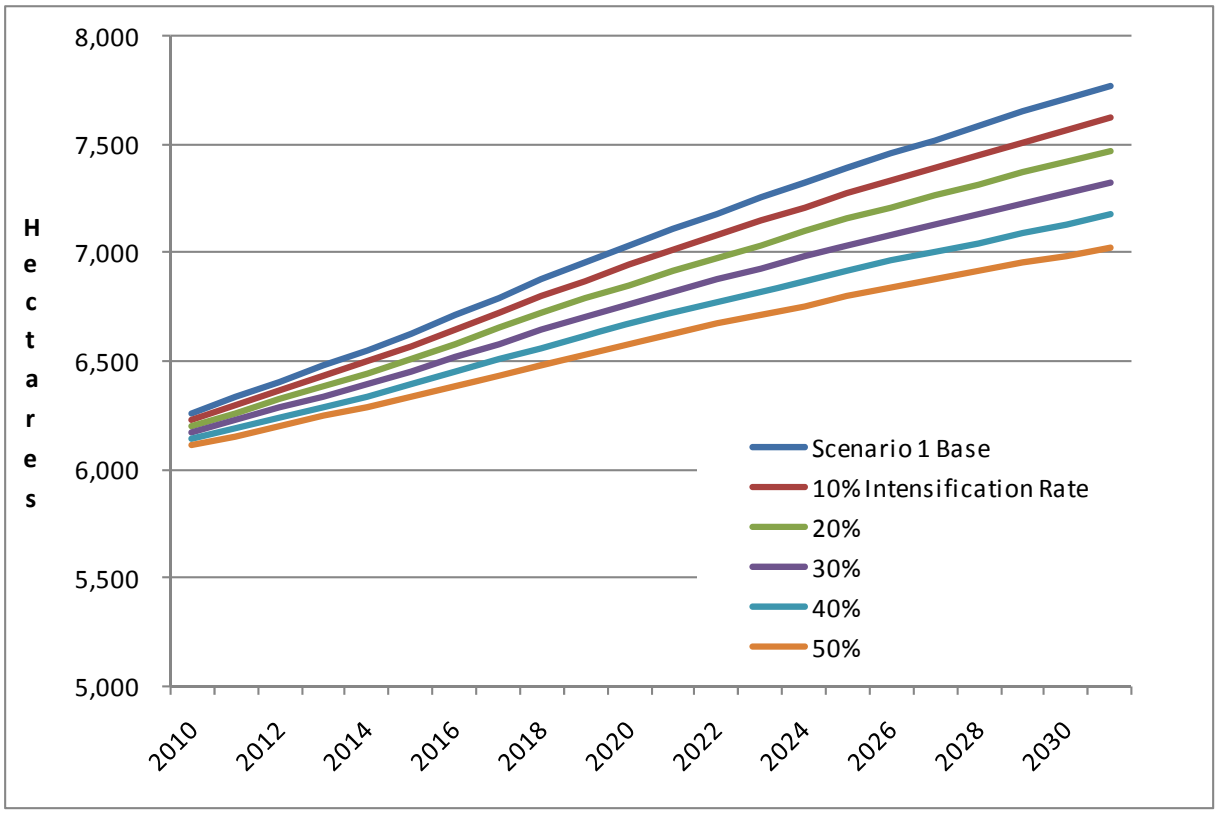


On the other hand, limitations on the available land supply will be offset somewhat by redevelopment of currently developed industrial lands. The rate of intensification will be determined by market forces, but a 20%-40% rate of intensification could extend land supply under this scenario into the mid 2020s.

Chart 7 provides an estimate of the reduction in land demand for given intensification rates. Including all sectors under Scenario 1, for every 10% of total new floor area constructed through expansion or redevelopment on existing developed industrial lands, about 150 hectares of the vacant industrial land would be preserved over the 21 year period from 2010 to 2031. A 10% intensification rate would be a conservative estimate for future development.

Metro Vancouver is preparing a separate study that will assess issues and options for intensification of industrial land development. The findings of that study will inform future scenario modeling of industrial lands and will be included in the Regional Growth Strategy Metro 2040 Performance Monitoring Program.

Chart 7. Estimated Reduction in Land Demand Through Intensification



3. ALTERNATIVES

No alternatives presented.

4. CONCLUSION

Metro Vancouver has a limited land base to accommodate future industrial related economic growth. Optimizing the efficient use of this land is crucial. Metro 2040 Performance Monitoring reports will provide an assessment of industrial land supply and demand based on the supply and utilization indicators referenced in this report and future demand scenarios that may be applicable.