The "Smart and ONLY" Way

TO Economically and Environmentally

Solve the South of Fraser's

Transportation & Transit Deficit

through State-of-the-Art Hydrogen technology!

"Building economic growth serving 1.2 million citizens,

16 cities/communities, Major Industrial Parks,

Abbotsford International Airport, Agri-Tourism and

FOURTEEN University campuses"

Re-Connecting the South of Fraser Communities

Fraser Valley Interurban Passenger Services 1910-50

3 track corridor waiting to be used 2017 ⟶

The railway built to serve passengers and freight in 1910 waiting to serve again

Compelling case

- Low cost
  - Rail corridor owned by the Province of B.C. (BC Hydro)
  - Based on Scottish case this may be done for less than $20M/km
- Early in-service date possible
  - Phased implementation over rail-ready sections
- No impact on Port-Metro activities
  - Not strategically important to the Port Metro Vancouver as not suitable for heavy freight movements due to 2.9% grade on Surrey Docks section of the line
- Complementary to Surrey LRT project
- Minimal disruption to major road networks during construction phase
- Most densely populated sections have minimal freight traffic

Supporting the Low Cost Solution

Learning from others….the Scottish experience

Comparison between the Scottish Border Rail project with the BC Hydro owned interurban corridor running from New Westminster to Chilliwack

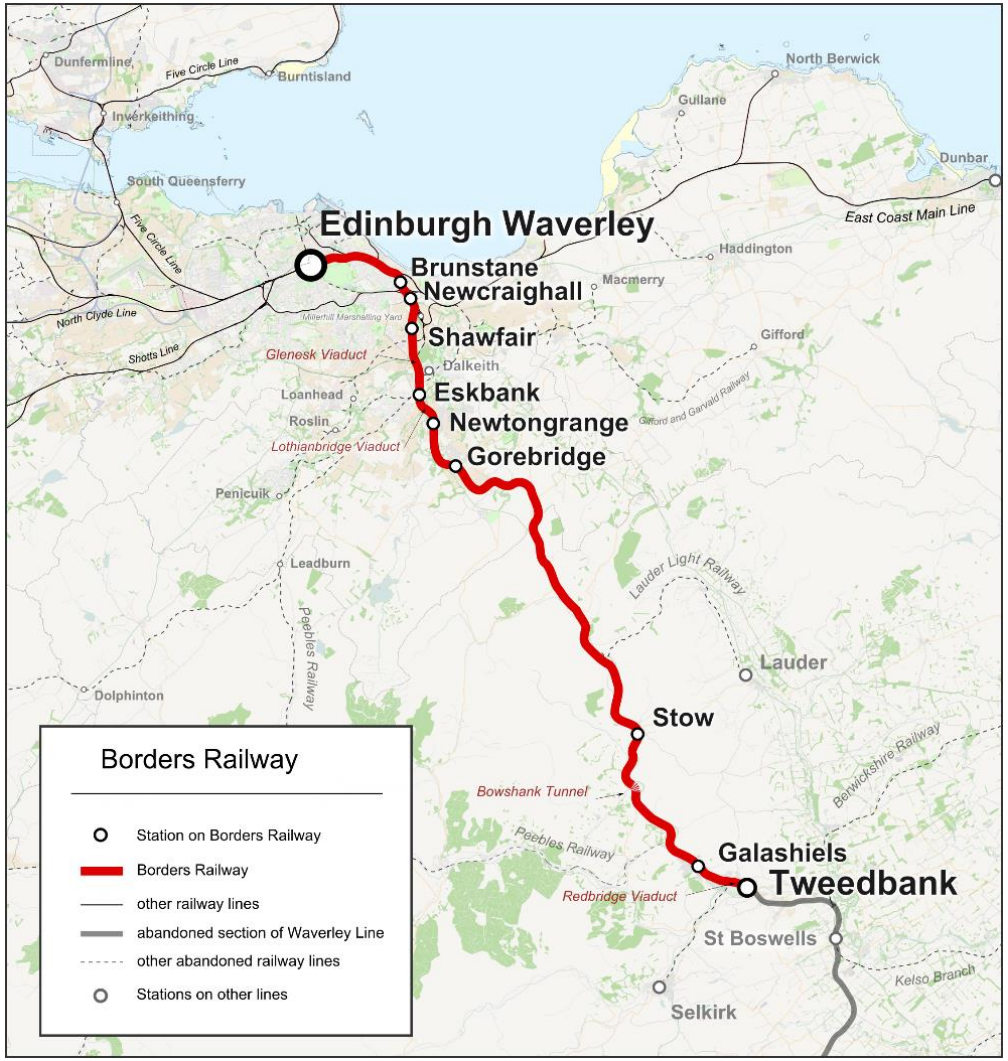
The Key Scottish Asset …… ……..an existing rail corridor

A 56km railway corridor, 46 kms totally dismantled and abandoned in 1969. Partly built on!

Links downtown Edinburgh

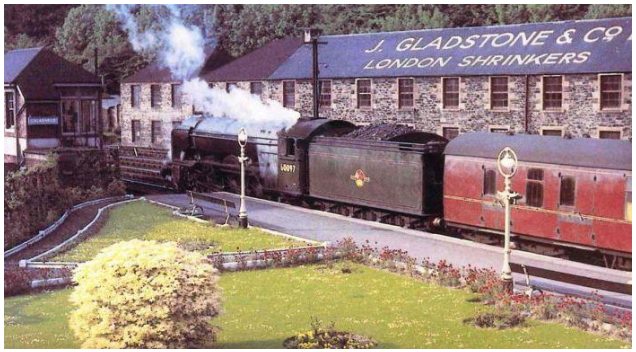
(same population as Surrey!)

to the rural border country and beyond



A little history……

The Scottish border country lost its passenger rail service to Edinburgh 46 years ago



Rail service in 1960s - Galashiels

Border Rail service restored-Sept 2015

Many challenges along the route……..

Construction Challenges of Scotland's Border Railway

New Bridges & Refurbished Tunnels

Scotland's Border Railway

- Marginal business case based on community needs and projected economic benefits from tourism
- Strong community support but contentious project
- 3 major line blockages due to buildings and new roads
- Original P3 collapsed; pseudo governmental agency succeeded.
- Work began Nov 2008. First sod turned 2010
- Operational Sep 9, 2015. Half-hourly service
- **Cost < C$10M/km**

Scotland's Border Railway

Project Specifications

- 65km of single line track (incl. 3 long dynamic passing loops)
- 42 new bridges
- 95 refurbished bridges
- 2 refurbished tunnels
- 1.5million tones of earth moved
- Non electrified but built to allow for future electrification

Cost of Construction £294 Million

C$ 539.2M (Based on Jan 2015 Canadian CRA exchange data 1GBP = C$1.83)

C$9.46M per km

Community Rail

The Fraser Valley Rail Line

The Case for Community Rail in the Fraser Valley

Objectives:

- **To enable Fraser Valley residents to have more choices in moving around the valley and into Vancouver!**
- **Reduce environmental impact of cars and trucks!**
- **Very positive economic impact on the lower mainland providing employee access to Industrial Parks plus easy access to the Abbotsford Airport!**
- **Dramatically improved student access to Fourteen post secondary institution campuses!**
- **Provide a cost effective solution that can be implemented in phases with the early phases being delivered quickly!**
- **Provide greater efficiency in transit through the integration of the new rail services with local bus routes! *A spine and rib system similar to Sky Train!***

Community Rail
The Fraser Valley Line
The Potential Routes

Scott Road, Surrey
(Skytrain Station)
to
Langley city
Length 20.2 kms

Langley City
(City Hall)
to
Abbotsford
(Essendene)
Length 41.86 kms

Abbotsford
(Essendene)
to
Chilliwack
Length 38.55 kms)

Community Rail

The Fraser Valley Rail Line

Key Points

- Passenger rights in place
- Corridor owned by BC Hydro
- Can be built in phases
- Suitable for Tram-Trains*
- Integration with short line freight movements. Temporal separation possible
- Serves large population
- Connects South of Fraser Communities

- Single line track utilizing majority of current corridor
- New routing to serve key centres
- Consider potential of new hydrogen FC iLints– in production (Alstom)
- Twin Track possible
- Consider potential of tram train technology (Vossloh)

Actual Cost Comparisons

British Columbia (fully automated light rail)

Project	Characteristics	Cost (CAN $)
Evergreen Line	11 km - Light Metro Skytrain-automated/underground/ surface/elevated (opening 2017)	**$130.0M/Km** **(Total $1,430 Million)**
Canada Line	19.2 km Light Metro-automated/underground/elevated/ surface (opened 2009)	**$107.0M/km** **(Total $2,054 Million)**
Surrey Center / Langley City	**18.1 kms Fraser Hwy (widen from 12 meters to 45 meters, Incl. 2 – 4 lanes plus 2 train tracks plus bike/pedestrian path) NOTE – Clear Cut a min. of 33 meters of Green Timbers Forest in Surrey!**	**$157.1M/km** **(Total $2.6 Billion)**
	OR	
NEW – Inter-Urban	**99.23 kms Scott Road to Chilliwack Open up the Fraser Valley**	**$12.5M/km** **(Total $1.240 Billion)**

Scotland UK (heavy rail)

Project	Characteristics	Cost (CAN $)
Border Rail	57km - Heavy rail*, Diesel Multiple Units – at grade, restored rail corridor. Multiple bridges and road realignments. (Open 2015) £294M	**$9.5M/Km** **(Total $539 Million)**
		(Exchange rate CRA Jan 2015)

*Heavy rail refers to rail stock that can operate in conjunction with freight services on same rail corridor.

Route Comparison

Edinburgh 6 kms

Edinburgh
Waverley
Brunstane

***Pop. 495,400**

Midlothian 15 kms

Shawfair
Newtongrange
Newcraighall
Eskbank
Gorebridg

Midlothian Pop. 85,000

Border Region 35 kms

Stow

Pop. 718

Galashiels
Tweedbank

Pop. 14,994

Delta / Surrey 25 kms

Scott Rd / Kennedy / N. Delta / Simon Fraser U. / Newton / Sullivan Kwantlen Newton & Cloverdale

***Pop. 468,251**

Langleys 16kms

Langley City / Township of Langley / Kwantlen PU • Trinity Western U / Gloucester Ind. Park / Thunderbird Eq. Park / Aldergrove / Fort Langley

Pop. 129,258

Abbotsford / Chilliwack 46kms

Bradner / Clayburn / City of Abbotsford / University of the FV / Abbotsford Int. Airport / Sumas / Yarrow / Sardis / City of Chilliwack / Canada Education Park

Pop. 149,855

*All population stats. 2011

Community Rail

The Fraser Valley Rail Line

Phased Approach

Project	Characteristics (Diesel Light Rail - Single track with loops)	Cost (Can$)
Scott Rd to Newton	10kms - at grade, 2.9% grade Scott Road to 96th Ave	TBD
Newton to Cloverdale	9.3kms – at grade. (Passes under major Hwy 15, 6 road Xings plus some farm Xings)	TBD
Cloverdale to Langley City Centre	5.5kms – at grade. Would require overpass to cross main Deltaport rail link plus possible alternate route. Disused corridor available for part of route	TBD
Langley to Abbotsford	28.52km – at grade. Passes over Hwy 1, numerous road Xings. Numerous day-trip tourist destinations	TBD
Abbotsford to Chilliwack	38.55km – at grade. Passes under Highway 1, numerous road and farm Xings. Serves historic small communities	TBD

The route of the interurban line incorporates few bridges but has many at grade rail crossings. These would almost all need to be upgraded to fully gated passenger grade. Access to Scott Road Skytrain station has been secured by City of Surrey

Observations

- Automated light metro systems are prohibitively expensive and necessitate limited regional transit coverage thus making the region 'transit poor'
- $300M tunnelled and $130M/km elevated automated transit systems are not affordable on a regional basis
- We can learn from other regions that maximize their transit coverage through integrating available infrastructure into the overall transit system

(We preach reuse in waste management why not infrastructure ?)

The Fraser Valley lost its passenger service to Valley communities and Vancouver 75 years ago

Coradia LINT 41DMU
Ottawa "Trillium/O-Train" 2013
Fraser Valley Community rail 2020 ???

Coradia LINT 41DMU
Ottawa "Trillium/O-Train" 2013
Fraser Valley Community rail 2020 ???

Actions

- Review/Update original 2006 Translink DRL Report in light of technology upgrades and cost and delivery constraints

NOTE: ***Hydrogen FC powered units are capable of operating along interurban corridor with no interference with BC Hydro's' secondary transmission lines that also use the corridor. Environmental impact due to operation of the Alstom Coradia iLint units is zero.***

Further information

www.**bordersrailway**.co.uk

www.**campaignforbordersrail**.org

https://en.wikipedia.org/wiki/**Borders_rail**

***Vossloh - Tram Trains**
http://www.vossloh-kiepe.com/news/press-releases/vossloh-rail-vehicles-und-vossloh-kiepe-liefern-sieben-neue-train-trams-nach-grossbritannien

Alstom – Hydrogen FC iLint Trains
http://www.alstom.com/press-centre/2016/9/alstom-unveils-its-zero-emission-train-coradia-ilint-at-innotrans/

Alstom – Hydrogen FC iLint Trains – First Order from Germany
http://www.thelocal.de/20160920/first-alstom-hydrogen-train-at-berlin-innotrans-tradeshow

http://www.alstom.com/Global/Transport/Resources/Documents/brochure2014/Coradia%20iLint%20-%20Product%20sheet%20-%20English.pdf?epslanguage=en-GB

Thank you