U-Trains

A Light Rail Shuttle

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Introduction

This project focus on replacing the on-going UFV shuttle bus service with a faster and more reliable LRT. **Light rail tram (LRT)** is an urban rail transit or tramway. LRTs are faster and capable to carry more people than most historical tramways. (A. Texas, 2001)

All the UFV campuses will be connected using LRT. This will reduce the time to travel between UFV campuses and Langley. LRTs are capable of carrying more people than our regular shuttle buses. Also, it will reduce the wait time at the station because LRTs can run pretty often on peak hours. So, UFV students won't have to wait for the next bus to arrive!

Scope:

We focus on replacing UFV Shuttle busses with Light Rail Shuttle service called U-Trains. It is a faster and more reliable way to commute between university's campuses and Langley. A new rail line will be constructed along the Fraser Valley highway. U-Trains will cover a stretch of 60 kms which is being covered by UFV campus connectors right now. There will be more trains and less wait time for students. (Campus Connector, n.d.)

Time:

Start Date	End Date
January 2020	November 2022

The project U-Trains will begin in January 2020. The rail track construction will be finished before mid 2021. There will be 10 trains purchased and imported from Japan. This project is expected to complete by November 2022.

Cost:

The construction for new light rail track will cost around $13,000,000. The trains will cost around $7,000,000. Construction of stations will cost $9,000,000. The expected maintenance cost is $2,000,000. The project cost sums up to $30,000,000.

ITEMS	COST (CAD)
Trains ($700,000 X 10)	$7,000,000
Track Construction	$13,000,000
Construction of Stations	$9,000,000
Developing Train Management System	$1,000,000
On-site Managers	$300,000
On-site Developers	$200,000
Testing & Amendments	$500,000
Total Cost	**$31,000,000**

Stakeholders:

There are a lot of stakeholders involved in this project. Some of the stakeholders are mentioned below.

Name/Title	Role	Description
University of the Fraser Valley	Primary Stakeholder	Provides finance to the project
Mayor of Abbotsford, Chilliwack, Langley.	Primary Stakeholders	Provides finance if the cost exceeds estimated cost.
Kevin Renso	Project Manager	Manages the business case and project team
Tushar Mahendra	Technical Support	Provides all technology support for the project
Kartik Arora	Software Support	Provides all software support for the project

Business Case

Background:

Most of the shuttle bus gets stuck in traffic due to road constructions, bad weather etc. This project is about replacing the current UFV shuttle bus service with a new Light Rail Trams. It will reduce the time to travel between campuses and aims to enhance the service. It is a faster and efficient way to commute between campuses rather than having using the shuttle buses.

Objectives:

- Build a Station at UFV Abbotsford Campus.
- Build a station at UFV Chilliwack Campus.
- Build a station at Carvolth Exchange, Langley.
- Connect the campuses using light rail track.
- Build a Customer Service Office at Abby Station.

Current Situation, **Problem and Opportunity Statement:**

Currently, there are a number of shuttle buses running between Langley-Abbotsford-Chilliwack. The wait time for every bus is around 35-60 minutes. (Campus Connector, n.d.)

Personally, I witnessed a few students travelling from Public Bus to Abbotsford (public transit costs $5) because of long wait time. Shuttle bus runs on an average time of 45 minutes.

LRTs will bring faster transportation service and students won't have to wait for the buses. There will be a live time tracking of U-Trains to see when the next train arrives.

Critical Assumption and Constraints:

Critical Assumptions:

- UFV will let us construct stations on campus.
- Government will grant us permission to build.
- All the stakeholders will be involved in the meetings.

Constraints:

- Time and weather will be a constraint in winters due to high snow fall.

This project is essential to effectively commute between UFV campuses and Langley.

Preliminary Project Requirements

- The trains will be faster and consistent.
- Safety measures will be taken in advance on every station.
- Progress will be tracked on weekly basis.

Schedule Estimate

The project U-Trains will begin in January 2020. The rail track construction will be finished before mid 2021. There will be 10 trains purchased and imported from Japan. This project is expected to complete by November 2022.

Potential Risks

- Hazards such as electric shocks due to powerful electric track. (Translink, n.d.)
- Risk of safety for students.
- Delay in project due to uncertainty.

Financial Analysis:

COST OF 1 STATION OVER 5 YEARS.	
ITEMS	**COST (CAD)**
Construction workers	$300,000
Construction material	$2,200,000
On-site Developers	$200,000
On-site Managers	$300,000
Total Cost Per Station	**$3,000,000**

OTHER EXPENSES	
CATEGORY	**COST (CAD)**
Beta Testing	$500,000
Software Development	$1,000,000
Project Manager's Salary	$500,000
Total Expenses	**$2,000,000**

Project Charter

I have prepared a project charter that outlines the deliverables, the project objectives, project constraints and a projected timeline.

Project Name: U-Trains

Project start date: January 2020 **Project finish date:** November 2022

Project Manager: Tushar Mahendra

Project Goal:

The U-Trains project provides faster transportation to the students of UFV.

- It will shorten the travelling time between the campuses.
- The wait time will be reduced at stations.
- Highway congestions won't affect the time taken to travel.

This project aims to enhance the shuttle services at UFV.

Deliverables:

- Abby LRT Station
- Chilliwack LRT Station
- Langley LRT Station
- Customer Service Office at Abbotsford Station.

Scope Definition:

I want this project to assist all the students of UFV in travelling between the campuses.

- A new rail line will be constructed along the Fraser Valley highway.

- U-Trains will cover a stretch of 60 kms which is being covered by UFV campus connectors right now.
- There will be more trains and less wait time for students.

Project Milestone:

Milestone	Deliverables	Date
Approval from top management	Project approval	Jan 2020
Budget	Managing Finances	February 2020
Supplier for Trains	Contact the supplier	March 2020
Construction of Tracks	Constructing the track	August 2021
Construction of Stations	Stations at Campuses	July 2022
Hiring & Training	Staff training and hiring	August 2022
Beta Testing	Testing the route	November 2022

Communications Strategy:

The communication between the project manager and the project management team will be on daily basis for everyday progress.

Project manager will hold meetings bi-weekly meetings with all the heads to track the progress of the project. Communications between stakeholders will be on bi-weekly basis.

Project Development Contacts:

Name	Position	Email
UFV	Project Sponsor	Ufv.director@gmail.com
Kevin Renso	Project Head	Kevin.r@ufv.ca
Tushar Mahendra	Project Manager	Tushar.m@yahoo.in
Manpreet	Team member	Ms.preet@xyz.com
Tanish	Team member	tanny@byx.com
Rubaiyat	CSR	rubaiyat@zx.ca

Project Authorization:

Approved by:	Business Manager	Date
Approved by:	Project Manager	Date

Work Break Structure (WBS)

I used lucidchart.com to create the following WBS diagram.

SWOT Analysis:

Strength :	**weakness:**
• Convenience and quick way of travel. • Solve problem of congestion. • Reduction in wastage of time. • User friendly. • Less vehicle pollution. • Increase access to education.	• Expensive infrastructure. • High maintenance cost. • High fares with the pass costing around $100 from now onwards. • Weather condition dependence. • Insufficient seating. • Noise problems.
Opportunities :	**Threat :**
• New Market development. • Create sustainable future. • Development of economy. • Easy access to campus education.	• Hazards such as electrical shocks, blast. • Excessive use of electricity. • Cheap alternatives available.

Assumptions:

- University will grant permission to run train from SUS Building.
- University will grand permission to make stations on campus property.
- Mayor of Abbotsford, Langley and Chilliwack will give permission to construct rail track.

Kill points:

- If university doesn't allow us to construct a station next to SUS building, then we might have to construct station beside Baker's House.
- If university doesn't grant us approval to use their property for station, we'd have to purchase land near university.

Project Outcomes:

According to TransLink, the following are the benefits of train transit:

- Increase capacity of travellers in a train.
- Improved reliability and safety.
- Connect UFV Campuses Chilliwack-Abby, Langley.
- Support economy by providing jobs and labour.

Procurement Management Plan:

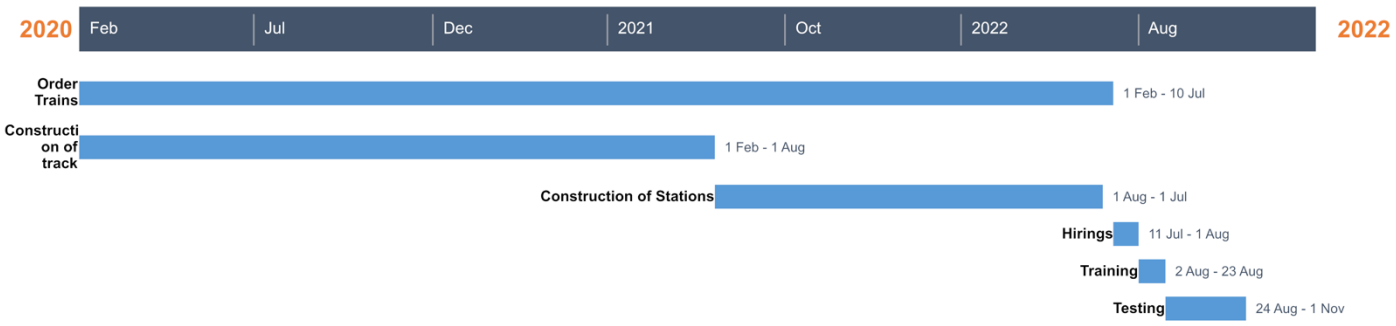
There are a number of items essential for the project to complete. The following items are required by the date justified in the table.

ITEMS	DESCRIPTION	REQUIRED BY
Track Building Machine	1 Track Building Machine to build the rail track.	1 February 2020
Elevators & Escalators	3 Elevators & 6 Escalators are required.	1 May 2022
LRTs	10 LRTs are required for the project to complete	10 July 2022

There are a few risks consisted with the procurement management plant.

- Manufacturing capabilities of vendors.
- Unrealistic cost from vendors.
- Delay in shipping of goods.
- Final good not meeting the standard requirements.

Gantt Chart:


2020
Feb
Jul
Dec
2021
Oct
2022
Aug
2022
Order Trains
1 Feb - 10 Jul
Construction of track
1 Feb - 1 Aug
Construction of Stations
1 Aug - 1 Jul
Hirings
11 Jul - 1 Aug
Training
2 Aug - 23 Aug
Testing
24 Aug - 1 Nov

References:

Chan, K. (2019, September 24). Urbanized. Retrieved from https://dailyhive.com/vancouver/mayors-council-federal-election-funding-translink-skytrain.

Garrett, T. A. (2015, January 13). The Costs and Benefits of Light Rail. Retrieved from https://www.stlouisfed.org/publications/central-banker/fall-2004/the-costs-and-benefits-of-light-rail.

"What is light rail?". *Public transport A-Z*. International Association of Public Transport. 2008. Archived from the original on 13 October 2008. Retrieved 29 July 2015.

20/07/2016. (2017, January 19). Counting the benefits of light rail. Retrieved from http://www.uitp.org/news/knowledge-brief-LRT.

Benefits. (n.d.). Retrieved from https://surreylangleyskytrain.ca/benefits.

Campus Connector. (n.d.). Retrieved from https://www.ufvsus.ca/campusconnector.html.

(n.d.). Retrieved from https://www.lightrailnow.org/myths/m_lrt012.htm.