



# Transportation Efficiency and Effectiveness Analysis

*Preliminary Findings and Recommendations*

# Project Plan

- **Site Visit and Data Collection**

- Visit occurred March 1-2, 2016
  - Interviews, data gathering
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- Data Overview
  - Customer Analysis
  - Route Analysis
  - Performance Indicators
  - Considerations
- 

- **Presentation of Materials**

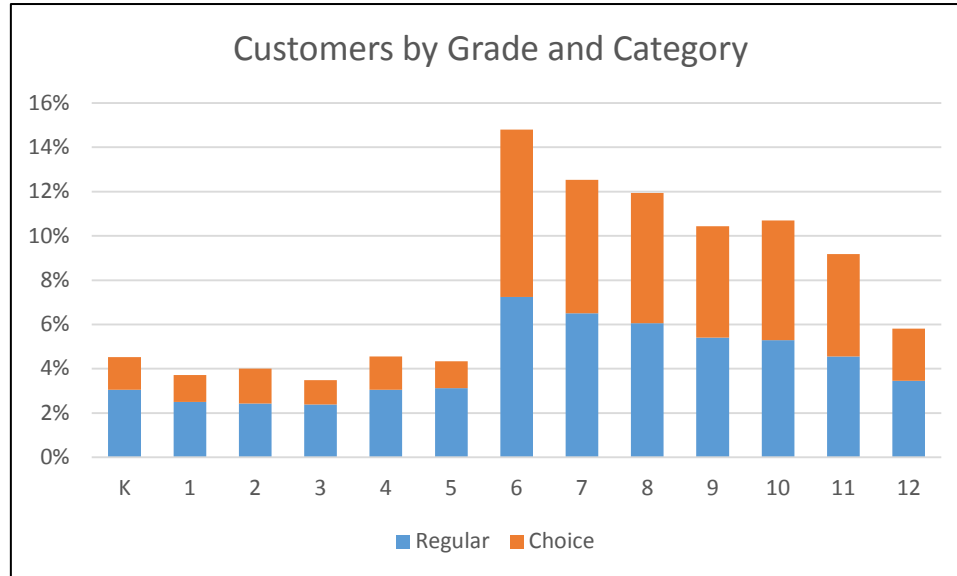
- Begins today

# Data Overview

- **Edulog Routing Software:**
  - Software in latest version, up to date
  - All student records manually entered
    - Accuracy checked at entry, via application
  - All routes are quality checked for time and direction accuracy
  - No concerns with data quality
- **Student Records:** 2,975 students
- **Route Records:** 43 routes
- **Run Records:** 244 runs
  
- **Policy Data**
  - Existing fee structure
  - Existing, but unenforced distance qualifications for service
    - 4.0 km & 4.8 km
- **Budget Information**
  - Used last year's actual expenditures
  - Added fleet depreciation
  - Removed extracurricular line items

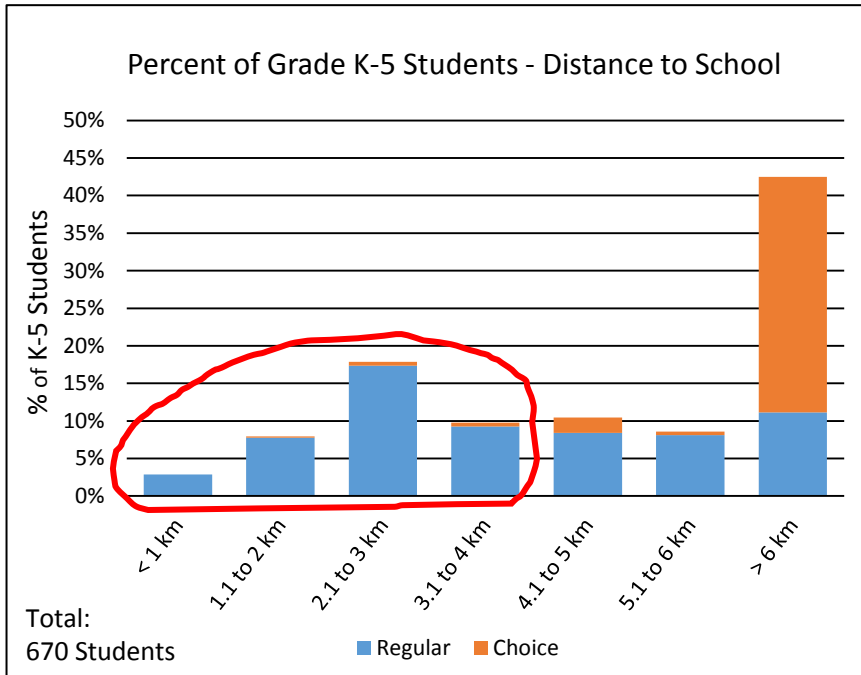
# Who are the customers?

- Filtering for analysis:
  - Student records are explicitly coded for choice, other distinguishable elements
    - Aboriginal, special education, forced transfer, etc.
  - Special education, wheelchair, education assist, and ride-along siblings removed from analysis
  - Result: 2,722 students
- Choice: 1,224 Students
- Regular: 1,498 Students

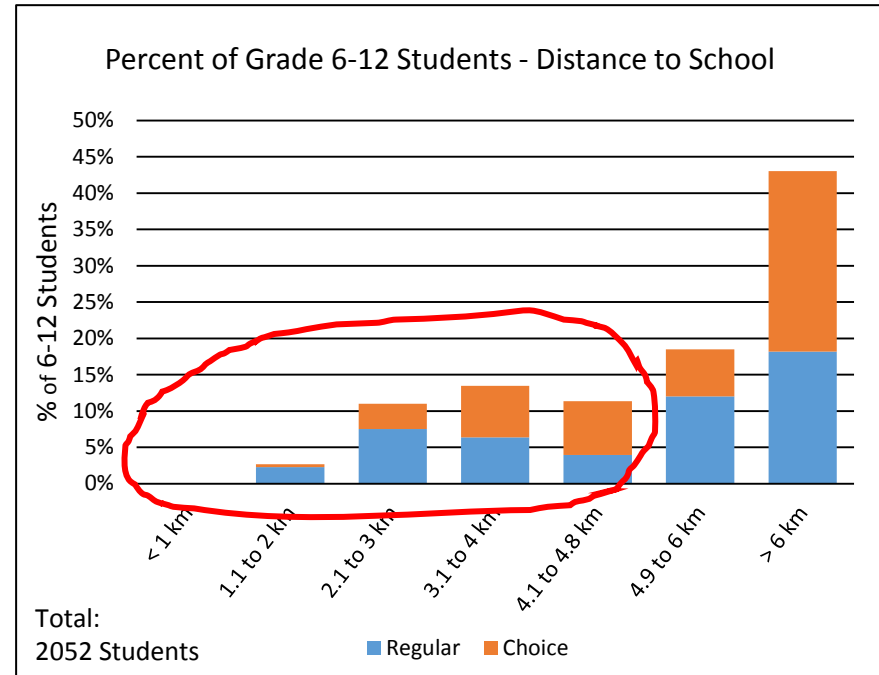


# Who are the customers?

- Distance Analysis:
  - Many students live within the 4.0 and 4.8 km parameters
  - Both regular and choice students
  - Choice students tend to live further



Approx. 258 students within the red circle



Approx. 792 students within the red circle

# Policy

- Enforcing the 4.0 km and 4.8 km policy for respective grade levels
  - Eliminates approximately **1,050 riders**, regular and choice
  - Eliminates approximately **863 riders** attending the catchment school
- Eliminating choice or non-catchment rides
  - Eliminates **1,224 riders** from transportation service
- The result of enforcing distance and non-catchment policy:
  - Reduction of **2,087 riders**
  - Approximately **888 riders** remain, according to today's enrollment

# Student Breakdown

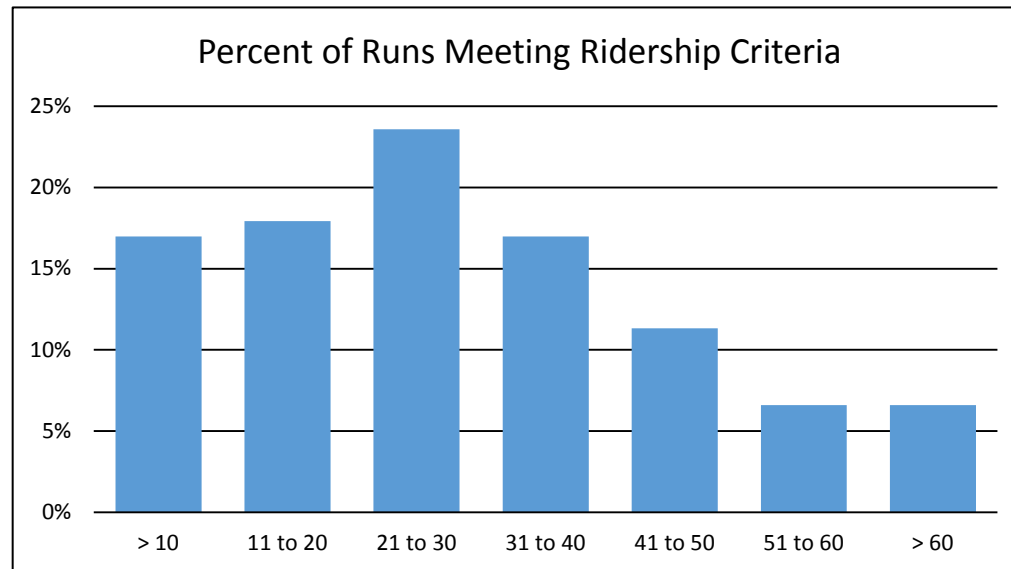
School Name	Type	< 4.0 or 4.8	> 4.0 or 4.8	No Distance Data	Out of Catchment
Aberdeen	Elementary	55	3	5	
Alexander	Elementary	1			
Barrowtown	Elementary	27	21		1
Brandner	Elementary	21	24	14	
Centennial Park	Elementary	1			
Harry Sayers	Elementary	1			
Jackson	Elementary	17	2		3
Matsqui	Elementary	17	12	15	2
Mountain	Elementary	64	8	1	
Mt. Lehman	Elementary	5	16	2	7
Prince Charles	Elementary	12	2	2	
Ross	Elementary	16	39	5	13
Upper Sumas	Elementary	19	70	33	11
ASIA N. Poplar	Elementary	1			3
King Traditional	Elementary				185
<b>TOTAL (756)</b>		<b>257</b>	<b>197</b>	<b>77</b>	<b>225</b>

- Alexander student transfers twice
- Centennial Park, Harry Sayers are “forced transfers”

School Name	Type	< 4.0 or 4.8	> 4.0 or 4.8	No Distance Data	Out of Catchment
Abby Middle	Middle	51	12	3	22
Chief Dan George	Middle	3	6	1	150
Clayburn	Middle	43	121	9	7
Eugene Reimer	Middle	20	18	5	2
Howe	Middle	4	1		3
W. A. Fraser	Middle	76	65	12	5
Abbotsford Senior	Secondary	22	13	5	57
Rick Hansen	Secondary	24	83	12	5
Robert Bateman	Secondary	36	97	20	35
W. J. Mouat	Secondary	6			134
Yale	Secondary	50	106	30	13
Abbotsford Middle Trad.	Other		2		227
Abbotsford Trad.	Other	2	1		153
ASIA Sumas Campus	Other	3	5		186
<b>TOTAL (1966)</b>		<b>340</b>	<b>530</b>	<b>97</b>	<b>999</b>

# Route Analysis

- Routes are designed to comply with the expanded system:
  - Multiple transfers
  - Multiple shuttles
  - Students riding 2 or 3 different buses throughout the day
- System accommodates demands
  - By sacrificing efficiencies
  - In efficient systems, chart below would be reversed
    - More runs with 40, 50, 60 students scheduled





# Performance Snapshot

Metric Description	Value
Cost per bus/route	\$68,646
Cost per student	\$937
Transportation Budget % of District	1.8%

Metric Description	Value
Students per bus	69
Students per run	24
Average Run Time	31 Minutes

- **What does this mean?**
  - Small runs with low ridership, short ride times, buses perform many runs throughout the day
  - Transfer runs, shuttle runs, students riding more than one run
  - Likely due to low density of students going to specific location

# Options

- Fee structure
- Transit
  - Cooperation with BC Transit
- Organize and Prioritize Routes
  - Identify core services
  - Incorporate situational transportation where applicable