

Road Improvement Program



ROAD SAFETY REVIEW

CATALINE ELEMENTARY SCHOOL

School District #27 (Cariboo-Chilcotin)
City of Williams Lake

Review Team:

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1. INTRODUCTION

School District #27 has identified safety and operational issues with the school bus pick-up and drop-off configuration relative to student pedestrian movements at the Cataline Elementary School. Preliminary work has been undertaken that proposes a separate school bus loop facility on the north side of the school structure. However, this results in an impact to a portion of the forested area that currently provides a benefit to the students and community alike.

The School District therefore has decided to undertake a full road safety review of the school's pick-up and drop-off operations and has requested ICBC's Road Improvement Program to undertake the review. The purpose of the review is three-fold:

- To determine all safety issues with the current pick-up and drop-off operation;
- To identify appropriate measures to mitigate the safety issues; and
- Assuming that the proposed bus loop facility is a preferred mitigation measure, are there other measures that can achieve an appropriate level of safety.

2. SCHOOL SITE

Cataline Elementary School currently has 340 students in Kindergarten through to Grade 6. The school principal is John Silkstone and vice-principal is Hattie Darney and on any given day there is approximately 32 to 35 staff on site.

Cataline Elementary is located on the north side of Blair Street between 11th Avenue N and Beauchamp Crescent. Blair Street is an approximately 8.2 metres wide with a sidewalk provided on the north side. Stopping is prohibited on the south side of Blair Street during peak pick-up and drop-off times and parking is limited to 15 minutes on the north side adjacent the school. A marked and signed School Crosswalk is located on Blair Street at Beauchamp Crescent as well as on 11th Avenue N at Blair Street.

A 27 stall staff only parking lot is provided adjacent the south end of the school. This parking lot is also used as a pick-up / drop-off facility where parents queue in the middle of the lot in a westerly direction to actively pick-up and drop-off students. A 20 stall visitor parking lot is provided west of the staff parking lot. The north side of this lot is designated for a bus lane to accommodate the pick-up and drop-off activities of the school's nine buses.



Cataline Elementary School Site

3. COLLISION HISTORY

A review of the ICBC incident database for the five year period from 2011 to 2015 indicated no reported collisions at Cataline Elementary School (except for a door opening scrape). Three collisions at the intersection of 11th Avenue N and Blair Street were recorded with no perceptible pattern. It is noted that incidents may have occurred but were not reported to ICBC.

4. SITE VISIT

Site visits were conducted at Cataline Elementary School during the peak afternoon pick-up period on Tuesday October 4, 2016 as well as during the peak morning drop-off period on Wednesday October 5, 2016. General comments from school staff indicated that the observation days were typical of the pick-up / drop-off operations, with some days being busier and some less busy – often weather dependent.

Student Travel

Three main modes of student travel were observed:

- Some neighbourhood students walked to school, entering the school site from three different directions:
 - On Blair Street at the school's east end and walking on the east end of the staff parking lot to the main entrance;
 - On Blair Street at the school's west end and entering the school grounds at the entrance to the Visitor Parking Lot, continuing to the north side of the Staff Parking Lot to the sidewalk in front of the school that leads to the Annex or the main entrance; or
 - On 11th Avenue N north of the school on the pathway located on the right-of-way connecting the street to the school, through the forested area to the main entrance.
- Some students were driven to school and were dropped off or picked up in the following manner:
 - Drivers used the makeshift pick-up / drop-off lane in the Staff Parking Lot;
 - Drivers used on-street parking, either in the 15 minutes duration spaces on Blair Street or around the corner on Beauchamp Crescent; and walked the students into the school, or
 - Drivers used the Visitor Parking Lot and walked the students into the school.
- Some students were delivered or picked up by a school bus. Most of these students used the playfield connection between the bus lane and the school entrance.

It is noted that students were not observed cycling to/from Cataline School but this could be a possibility on a warmer day.

On-Site Facilities

The following table describes pedestrian pathways, pick-up / drop-off facilities and the bus facilities on the school site.

<p>The pedestrian connection from the sidewalk to the main entrance on the east side of the Staff Parking Lot is a combined pavement/grass path separated from the parking lot by concrete barriers</p>	
<p>The pedestrian connection from the west sidewalk includes a crossing of the Visitor Parking Lot entrance, through a gravel walkway between the Visitor and Staff Parking Lots, across the entrance to the Annex, and onto a pathway alongside the school building separated from parking spaces by a guardrail.</p>	
<p>The pick-up / drop-off facility located within the Staff Parking Lot consists of a painted pedestrian walkway behind parked vehicles that leads to a gap in the parking for pedestrian access to the school.</p>	
<p>The existing bus facility is located on the north side of the Visitor Parking Lot and is separated by concrete barrier. Gates are provided in the fence separating the bus lane from the playfield such that the gates line up with the bus doors when the buses stop. This allows the playfield to serve as a collection area for the students waiting for and getting off the buses.</p>	

School Staff Monitoring

Supervision is provided by school staff at three key locations during the peak pick-up and drop-off times. These include the school bus lane location, the crosswalk into the Visitor Parking Lot, and the pick-up / drop-off facility within the Staff Parking Lot. Staff are present to monitor and encourage appropriate pedestrian and driver behaviour. The need for supervision was apparent and the locations were chosen well – each location has safety issues that are compounded by inappropriate pedestrian and driver behaviour.

5. SUMMARY OF SAFETY ISSUES

The observed safety issues at Cataline Elementary School site can be organized into three categories – demand related, infrastructure deficiencies, and pedestrian-vehicle conflicts.

Demand Related Issues

Cataline Elementary is similar to many neighbourhood schools built at a time when a much higher proportion of students walked or road their bikes to school. There is insufficient on-site space for the pick-up and drop-off activities, often resulting in queues extending out of the parking lot and backing up on Blair Street to 11 Avenue N. Congestion can lead to frustration and aggressive driving, raising the potential for conflicts.

Similarly the visitor parking demand exceeds the space provided, thereby encouraging the use of the staff parking lot as well as Blair Street and Beauchamp Crescent. The two could be related – a high demand for visitor parking may be due to pick-up / drop-off spaces not being available. Students walking to/from parked vehicles increase the conflict potential at entrance crossings and within parking lots.

Infrastructure Deficiencies

Pedestrian connections on site are lacking, discontinuous and/or in poor surface condition. In particular:

- The walkway on the east side of the Staff Parking Lot is a combined pavement/grass surface, and
- The pedestrian connection from school entrance to Visitor Parking Lot is circuitous and of poor surface quality (discontinuous concrete and gravel).

The pedestrian crossing of Visitor Parking Lot entrance is set back from Blair Street in a non-typical location. This is mitigated during peak times due to number of students and staff monitoring, but awareness of crossing could be lacking during non-peak crossings. This is compounded due to a lack of lighting, a lack of pedestrian crossing signs and worn out paint markings.



Parking Lot Crosswalk

Lighting is non-existent throughout both the staff and visitor parking lots, the bus loading area and all entrance crossings. This is an issue not only for students arriving early/late for extra-curricular activities in the winter season, but also for staff.

Pick-up / drop-off activities are occurring in the middle of the Staff Parking Lot, with students getting out of the vehicles into the parking aisle. Without a formal facility with a receiving sidewalk and passing lane, haphazard movements are made increasing the risk of conflicts.

The parking lot for the Support Services gains access from the Visitor's Parking Lot. This creates the potential for increased conflicts and a higher crossing demand of the entrance sidewalk. Exiting vehicles from the Support Services parking lot were observed exiting from the Visitor Parking Entrance.



Support Services Access

Pedestrian-Vehicle Conflicts

The excessive demand and the infrastructure deficiencies can contribute to potential conflicts whereas this section describes pedestrian-vehicle conflicts that were observed during the site visits. These conflicts included:

- Students exited from the pick-up / drop-off lane queue throughout the parking lot and walked behind and between cars to the school.
- Parents parked in empty spaces in the Staff Parking Lot and students walked through the parking lot to/from the school.
- Vehicles backing out of the Staff Parking Lot spaces conflicted with vehicles in the pick-up / drop-off lane.
- Students walked through the Staff Parking Lot to get to the Blair Street sidewalk.
- All students and parents walking between the school and the Visitor Parking Lot cross at the parking lot entrance at the peak time of entry to the parking lot.
- Students and parents walking to their vehicles in the Visitor Parking Lot were walking aside moving vehicles in the parking aisle.
- Bus-bound students and playfield-bound pedestrians walked through the Visitor Parking Lot and bus lane.



Parking Lot Conflicts



Parking Lot Conflicts



Students in Bus Lane

6. MITIGATION MEASURE OBJECTIVES

A common theme of all safe school design guidelines is to provide separation between the physical routes for the basic components of travel (buses, cars, pedestrians/cyclists, and service vehicles) and to minimize vehicular and pedestrian/cyclist conflicts. Of course this is much easier to do for new school site designs but the same objectives improve safety on retrofit projects. Separated facilities provide a more structured operation where behaviours (drivers and pedestrians) are more formalized and better controlled. Physically separated facilities prevent misuse of space and decreases conflicts.

In this respect, three key objectives at the Cataline Elementary School site should be:

- Separate students that walk and cycle to school from the vehicular driveways, parking lots, and pick-up / drop-off areas.
- Separate the pick-up / drop-off areas from the parking activities; and
- Separate the school bus facilities from the parking activities.

Other objectives include encouraging a high turnover of space in the pick-up / drop-off facilities and to place these facilities as close as possible to the school with direct dedicated walkways to the school. Parents parking and walking students in/out of the school can park at a greater distance where driveway crossings may be required.

7. RECOMMENDATIONS

The following measures are recommended to meet the safety objectives:

- Pedestrian paths/sidewalks should be provided to allow students to connect from the street to the school entrance without being in conflict with vehicles. It is suggested that:
 - A sidewalk be installed along the east property line from the Blair Street sidewalk to the school entrance;
 - A sidewalk be installed between the parking lots from the Blair Street sidewalk to the school entrance; and
 - A pathway be constructed from 11th Street N through the right-of-way to the school grounds.
- A pick-up and drop-off facility be constructed in front of the school adjacent a 3 metre (minimum) wide sidewalk that allows students to exit the vehicle on the passenger side onto the sidewalk that leads to the school entrance. Observations indicated that the size of this pick-up and drop-off area would not accommodate the existing demand, so a second facility is recommended in the west parking lot – again with a sidewalk providing a direct connection to the school entrance. Often a safe traffic management plan is developed for schools; one for Cataline Elementary could assign families with young students to the east parking lot facility, the rest could be assigned to the west lot.

- Staff Parking should be relocated to the west parking lot with Visitor Parking accommodated in the east parking lot in front of the school. A crosswalk should be provided from the Visitor Parking area through the pick-up / drop-off zone. Additional visitor parking space should be created on-street in front of the school by maintaining the 15 minute time limit during 8:00 am to 5:00 pm. Stopping should still be prohibited on the south side of Blair Street due to the narrowness of the street.
- The existing school bus facility should be relocated away from parking facilities and pedestrian activities. The proposed school bus facility to the north of the school provides safe one-way, counter-clockwise bus circulation to assure the loading/unloading of students occurs onto the provided sidewalk with a direct connection to the school without vehicle conflicts.
- The sidewalks on the bus loop also provide the pathway connection from 11th Street N to the school entrance without vehicle conflicts.
- With the bus stop relocated, the east and west parking lots could be designed as shown in Exhibits 1 and 2. Appropriate lighting should be installed to improve visibility during dark conditions.

Exhibit 1 – East Parking Lot (In Front of School)

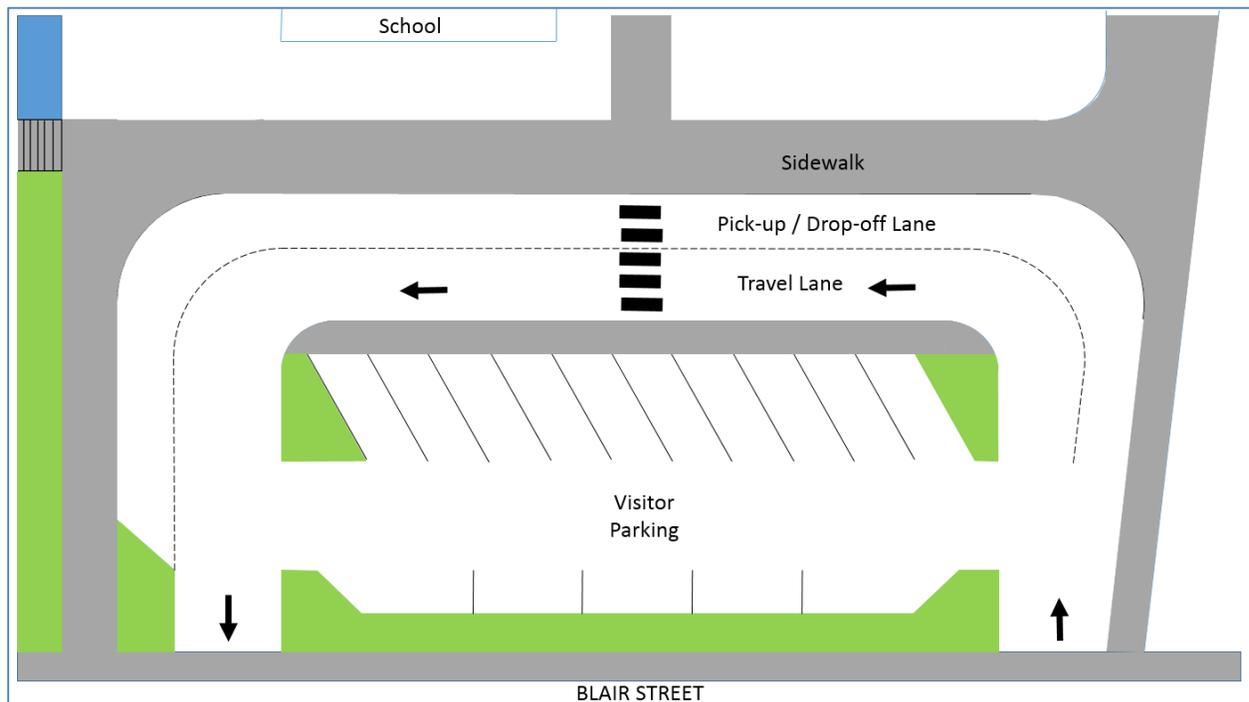
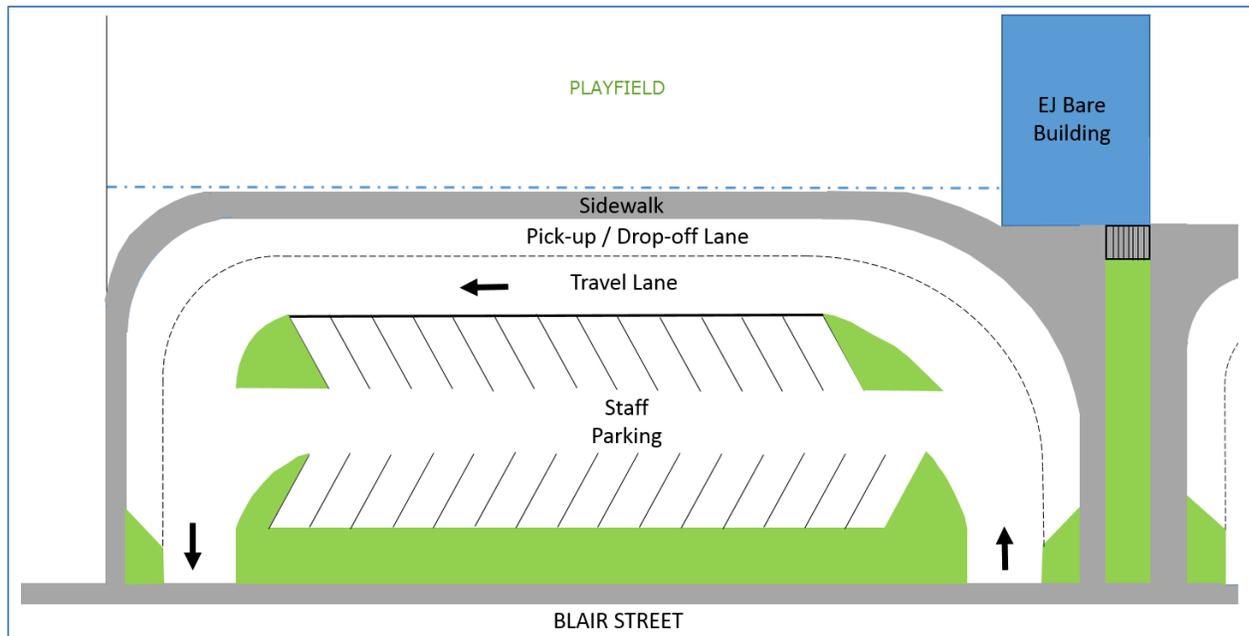


Exhibit 2 – West Parking Lot



The ultimate parking lot configurations are anticipated to be built with proper concrete curb, gutter and sidewalks along with asphalt pavement and road markings. However, if funds are limited and interim standard could be achieved on the west parking lot with gravel, curb stops and concrete barriers.

Further safety enhancements could be made on Blair Street. If the on-street parking demand increases, curb extensions at the access locations would improve sightlines of incoming motorists to pedestrians and of exiting motorists of Blair Street motorists. Additionally, curb extensions at the crosswalk at Beauchamp Crescent would improve sight lines.

8. Conclusions

Student safety issues were identified in the review of the peak pick-up and drop-off operations of the Cataline Elementary School. These issues centred on an excess demand for parking and pick-up / drop-off space relative to the supply and infrastructure deficiencies that contributes to conflicts between pedestrians and vehicles. Recommendations were provided that are based on safety improvements resulting in the potential reduction of conflicts within the school's parking facilities.

One of the recommendations was the separation of the bus facility from the parking activities and relocating it north of the school. It is realized that there is a competing objective in this relocation. If the bus facility cannot be relocated, the above recommendations remain except that the pick-up and drop-off facility in the west parking lot would change to a bus facility. This would still provide some safety benefits over the existing conditions. However, the decision to

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relocate the bus facility or not should only be made with the clear understanding that the option to keep the bus facility where it is would compromise safety due to:

- increased congestion as the demand for pick-up / drop-off facilities would exceed the proposed supply in the east parking lot, and
- increased vehicle-vehicle and vehicle-pedestrian conflicts due to the mixing of parking and bus activities.

ICBC's Road Improvement Program would like to thank the School District #27 for being invited to provide road safety advice and commend the School District and the School for pursuing safety improvements to the Cataline Elementary School site.

The image shows a handwritten signature in black ink on the left, and a circular professional seal on the right. The seal contains the text "PROFESSIONAL ENGINEER" around the top and bottom edges, "PROVINCE OF" at the top, "D. C. DEAN" in the center, and "BRITISH COLUMBIA" at the bottom.

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