
Procedure Section:	Transportation
Procedure Title:	Route Review
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Year of Next Review:	

The development of new or review of existing routes can take place if one (1) or more of the following occur:

- declining enrolment and eligibility within the school boundary;
- growing enrolment and eligibility within the school boundary;
- new school construction/relocation;
- decommission/ closure of existing school;
- bell time changes are required or requested;
- transportation operator service issues;
- general maintenance.

Route Development

In all the above situations, RCJTC will:

- Review the load counts versus the routes assigned per school to ensure that the equipment to student ratio is acceptable.
- Use the student electronic database to verify the number of students eligible within boundary.
- Use the transportation software to plot all the students and ensure that students can be serviced within the allotted time to justify the number of routes to time mandate (optimization).
- Use the transportation routing software for student assignment for ride times and weighted load counts (utilization).
- Design the routes in a manner that they will be available to be multi-routed with other schools and ensuring that school bell times are established for best use of the contracted vehicles (efficiencies).
- If declining or growing enrolment exists, RCJTC will review the number of eligible students within the school boundary and that require transportation (effective).
- If a new or relocated school is planned, RCJTC will review the new eligible student population as determined by the new boundaries and that require transportation.

When this occurs this process must also be followed with any school(s) that received a new eligibility boundary.

- For all the above factors, RCJTC will determine the number of vehicles required to service each school, bearing on the ability to multi-route including but not limited to route time, ride time, empty vehicle location, deadhead of vehicle and all hazards. RCJTC will also review any bell time change that could provide for more cost-effective transportation.

Route Alignment

RCJTC will design the routes in a manner in which the start and end locations of the routes are conducive to integrated (where appropriate) multi-tiered routing with neighbouring routes and schools for all member Boards.

RCJTC will meet with school principals to suggest bell time changes and to provide and promote positive service improvement with changes including the reduction of cost to the Member Boards. This can provide for but is not limited to reduced ride times, removal of turnarounds, door side service (hazards).

RCJTC will design and connect the routes and couple them with new or existing routes for improving service and reduction of equipment where applicable while maintaining service levels.

RCJTC will meet with the transportation operators to plan the timing, roll out and execution of the changes and solicit transportation operators for recommendations, timing, roll out, and execution of the changes.

RCJTC will require transportation operators to “dry-run” the routes at or near regular route times to ensure that the design will work with timing and street accessibility.

Transportation operators will return the routes to RCJTC with any suggestions or corrections and pending approval.

RCJTC will finalize the routes, attach the student lists, communicate with the school for all the final arrangements and as required, communicate with the parent community for their transportation information.

Route Assignment

RCJTC will endeavour to assign routes based on the following considerations:

- Transportation operator qualifications to receive new work including staff compliment and ability, continuing service level, policy and procedure compliance, safety record, equipment availability (specialty units), geographic fit to operations, availability to integrated multi-tiered-route new routes including re-design of other existing routes and the ability to adjust bell times at adjacent schools to ensure the proper fit.

- RCJTC will utilize software to optimize the assigned routes, to further scrutinize the plans.
- RCJTC will move or re-assign routes to any transportation operator as required achieving efficiency and reducing cost.

Route Assessment

Route reviews should be conducted annually to ensure the transportation system provides services to eligible students in accordance with member Board's Transportation Policies. Part of this review may want to encompass the use of a survey.

RCJTC will evaluate their transportation routing and scheduling system annually, starting February of each new year with completion in June of same year.

Evaluation of routes should be done as a safety, partial or full route review, and should be done on software equipped with a calibrated distance measuring instrument.

The general rule for measuring distance for establishment of bus routes is as follows:

1. Measurement is taken from the street or roadway adjacent to the residence, (such as curb or edge of roadway) to the nearest accessible and safe pedestrian and/or vehicle entrance to the school premises where the student center is located.
2. The route should be measured by the shortest feasible route that can be measured by vehicle.
3. The nearest physical barrier, such as the middle of the street, highway, alleyway, ditch or a school attendance boundary line designated by the member Boards' school zones will determine eligibility for transportation.

School Bus Route Survey Information

The driver is often the key person in providing pertinent survey information because he/she is thoroughly familiar with the route patterns and can provide the essential information concerning stop locations, number of passengers at each stop, grade levels, operational time schedules, and descriptions of any special conditions, such as transferring of passengers at a strategic point etc.

Some pre-survey information is usually needed, such as: total students requiring transportation by schools and grades; daily time schedules for each school; and an understanding of the kindergarten and special education programs.

Routing Techniques

The route coordinator(s) may vary the basic route types through the use of one or more variations or techniques which include the use of transfers, turnarounds and having the route serve more than one school. Each of these approaches has advantages but can only be used when particular circumstances permit.

1. A transfer route involves the introduction of a transfer into the route types discussed earlier. While often a useful technique for improving operating efficiency or shortening the time students spend on the bus, transfers may reduce the level of service provided on a route because of the inconvenience caused to the students. Transfer points have to be carefully located to ensure that students can change buses safely.
2. Feeders: short routes may be introduced to pick up a relatively small number of students and then transfer them to buses traveling on a more-or-less direct route to school. This approach may be employed where relatively few students live on certain secondary roads and cannot be served using the main bus, either because students live too far apart to be served economically or because the roads are impassable for large buses. Small buses are usually employed on feeder routes.
3. Interlocking: under certain circumstances, it may be desirable to arrange for two routes to cross and at that point to transfer students from one bus to the other or to exchange students between buses. The buses then travel to different schools. This approach may be necessary when the attendance areas are not regular in shape but in some way interlock, so that students at the farthest point from one school are picked up initially by a bus destined for a different school. Other features of the local road system and/or student distributions may dictate the use of interlocking transfer routes.
4. Shuttle: a route may be used which merely shuttles students between schools. In this way, students are dropped at one or both schools, and a different bus (often one that has already completed a normal route) distributes the students to two or more nearby schools. The shuttle can transfer students from one school to special facilities or to instructional programs in another school.
5. Turnarounds: frequently it may be uneconomical to route a bus along the entire length of a road where only one student or a few students live at a point part of the way along the road. There may also be occasions when for reasons of efficiency or safety the route coordinator may not wish to have a bus travel on a particular road. In these cases, a turnaround may be incorporated into the route. To accomplish this, the bus proceeds along the road to pick up the students, then turns around at a convenient location, retraces its path back to the next crossroad and proceeds on the main part of the route. In this way, the turnaround can also be used as an alternative to feeder routes when road conditions permit. The turnaround should be used only when a safe place is available for the reversing to take place. The turnaround can lead to inefficiencies if used too often on a single route, because the bus must frequently retrace its path; and this lengthens trip times.
6. Integrated-school routes are a type of layout in which students are picked up and dropped off at one of several schools located on the same route. Thus, students destined for any one of several schools on the same route may be traveling on the bus at any one time. Since the bus arrives at the schools in sequence, it is important that the travel time between schools be kept to a minimum so that students will not be dropped off too early at the first school nor too late at the last. The usefulness of this type of route is, therefore, primarily dictated by the distances between

schools in the area. Efficiency may be improved by adjusting bell times if a majority of students are served by buses.

7. The multi-school route is particularly useful in areas where there are subdivisions or other concentrations of students along the route between schools. In this case, students can be dropped off at the first school, and the bus filled up again before reaching the second, thus increase the utilization of the vehicle. It does, however, present quite different timing and scheduling problems, particularly in terms of arrival and departure times at the schools.

Types of Service

In addition to the basic layout of the routes, the route coordinator must consider the various methods of providing service on the routes since routing affects the quality of service provided to the students and the ultimate cost of transportation operations. There are three types of service:

- a. The single trip involves a morning and an afternoon trip by one bus on each route and is common in sparsely settled regions or schools with large attendance areas. The single trip plan requires a maximum number of buses and drivers because each route is covered only once. Each bus serves only one route and usually one school destination.
- b. The multiple trips calls for each bus to cover two or more different routes morning and afternoon. Often called the double or triple run, this approach is well-suited to more densely populated areas where distances between the students and their schools are not great. It is particularly efficient when many children live in subdivisions relatively close to school. In this case, the bus can serve a direct route bringing students from farther out in the region on its first run, then operate a shuttle service to a nearby concentration of students on its second or third run. Providing the scheduling can be worked out satisfactorily, this plan for serving the route can be very economical because of maximum utilization of buses and drivers. The efficient implementation of multi-trip service depends on the coordinated and staggered scheduling of school bell times throughout.
- c. The dual-trip plan also known as dual routing (looping), calls for two or more morning trips and two or more afternoon trips by each bus. Like the multiple trips, this arrangement is feasible only in areas where students are concentrated in relatively small areas, and the distances between students and their school is short. This approach does, however, have the advantage of transporting more students with one bus than the single trip. The normal disadvantages are: one group of students arrives at school much earlier than necessary and another group is required to wait after school for the bus to make a second trip. This system is primarily used where one group of children, such as kindergarten students, attend school for only a part of the normal school day. Their schedule can be arranged so that it does not conflict with the other round trip made to serve the balance of the students living in the same area. Dual trip plans also work well when two vertical

organizations, such as a high school and an elementary school, utilize adjacent facilities but have staggered starting and dismissal times.

Route Design

The single most important tool needed for route design is an adequate map or series of maps of the school district, or the transportation service area. All of the detailed student information that is available is worthless to transportation staff unless the data can be shown graphically on the base map. A display map showing the location of all schools and all student residences, proposed or established bus stops, classes of highways, major traffic controls and recognized safety hazards should be available to all staff members.

Direct (linear) or two-way route is a main route which extends from the base to a stop in the district. Regardless of where it is started, the bus basically uses the same roads for both the incoming and outgoing trips, thereby traveling both ways on the same roads. On this type of route, the students travel more directly towards school. The first students on in the morning are the last off in the afternoon. Another appropriate identification for this type of route is "p.m. reverse of a.m."

Indirect (circular) or one-way route is a main route which extends from the base to a stop in the district. Regardless of where it is started (usually close to where it will finish), the bus basically travels in a large circular pattern, thereby picking up or discharging students travelling different roads. On this type of route, the students travel more indirectly towards school. The first students on in the morning are the first off in the afternoon, this allows for a more equalized ride time. Another appropriate identification for this type of route is "p.m. same as a.m."

Safety must never be sacrificed for the sake of shorter schedules or reductions in the bus fleet!

The trial routes may be adjusted to:

- (1) Locate better starting points for the routes.
- (2) Straighten routes.
- (3) Reduce number of turnarounds.
- (4) Balance loading.
- (5) Load buses as quickly as possible.
- (6) Reduce overlaps and achieve better coordination between routes.
- (7) Examine possibilities for double runs.
- (8) Revise routes which are either too long or too short.

Note: Additional adjustments may be necessary after the bus fleet has been in operation for a few days.

Following is a list of areas which should be investigated during the annual evaluation.

1. Are all bus students arriving on time for class?
2. Are any arriving excessively early?
3. Are any arriving consistently late?
4. Are all buses available to load passengers at dismissal time?
5. Is there any overlap or duplication in bus routes that serve the same school facility?
6. Is adequate supervision provided in the school loading areas by the building staff?
7. Are the students required to use their assigned stop?
8. Are safe walking conditions to school or bus stops provided?
9. Are buses overloaded, requiring spares to be sent often?
10. Are there buses only partially loaded?
11. Are any students spending more than 1 hour on a one-way trip to or from school?
12. Are the buses parked in the loading/unloading zones with the engine off?
13. Are buses transporting less than 50% of capacity of eligible students (the balance being temporary)?

Individual Route Checklist

1. Does route utilize the safest and most direct roadways between residence and schools?
2. Do stop locations provide for safe waiting areas off the roadway?
3. Is there adequate sight distance in both directions at stop location?
4. Has route planning eliminated backing of the bus (turnarounds) where possible?
5. Are stop locations held to a minimum whenever possible (greater than 200M apart)?
6. Is crossing the roadway for loading and unloading held to a minimum?
7. Is route established to hold riding time to a minimum when possible?
8. Are buses routed over lower traffic density streets when possible?

9. Are buses servicing multiple routes scheduled and routed to avoid excess layover time and deadhead mileage?
10. Are there sufficient seats for all passengers?
11. Does the number of passengers justify the size of the bus used?
12. Are changes in routes relayed to passengers, parents and appropriate school officials?
13. Are buses making right-hand turns as often as possible when entering or exiting high- speed roadways?
14. Are bus routes established upon the basis of safety, efficiency and need -- not parent convenience?
15. Are changes of address notices made available regularly to the transportation department?

School Bus Stop Evaluation

The evaluation should be in conjunction with the route evaluation. The following areas should be investigated during the annual evaluation.

1. Are school bus stops located in areas where the view is unobstructed for 150 meters (500 feet) in either direction?
2. Are school bus stops whenever possible located off the traveled portion of the roadway?
3. Are school bus stops whenever possible established so that students do not have to cross the roadway?
4. Are school bus stops locations the same for the a.m. and p.m. routes?
5. Are school bus stops located within 5 meters (18 feet) of any intersection?
6. Are school bus stops located within 60 meters (200 feet) of any controlled intersection?

Loading and Unloading School Zone Evaluation

The evaluation should be done in conjunction with the route evaluation. Loading and unloading of students should be made on the school premises whenever possible. The following areas should be investigated during the annual evaluation.

1. Do buses have loading and unloading areas free from conflict with other vehicles and pedestrians?
2. Do bus operators have full view of the designated loading zone?
3. Do bus drivers have adequate space available for entering and exiting without having to back the school bus?
4. Does school staff monitor the loading and unloading of students?
5. Are the appropriate loading and unloading signs posted?
6. Are there proper pavement markings in the loading and unloading area?
7. Are appropriate speed limit signs and/or bus loading signs present around the school site?
8. Are crosswalks available in all directions around the school site?

The time spent by Transportation Staff in planning safe and efficient routes may result in a reduced number of routes, better utilization of buses, and better services to all children.

Related RCJTC Policy

P.01 Transportation Policy

Related RCJTC Administrative Procedures

Related RCJTC Forms