SCHOOL DISTRICT GUIDE

TO SCHOOL BUS ROUTE SURVEY PROCEDURES, SCHOOL BUS STOPS AND LOADING/UNLOADING ZONES AT SCHOOL SITES

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I. Purpose

A school bus route survey is to collect comprehensive and specific route information and to observe driver efficiency, contractor organization, administration and supervision, adequacy of equipment, and efficiency of the route design. Analysis of the information generally provides an opportunity for planning, improvement, and efficiency to the local school bus operation.

Route surveys should be conducted to ensure that the transportation system provides services to the eligible students in accordance with

State Statute; 22-16-4, 1978 NMSA.

The school district should evaluate their transportation routing and scheduling system at least annually, immediately following the opening of school on a district cycle that shall not exceed five (5) years.

II. School District Conducted Route Surveys

The survey of local school bus routes may be made as a safety review, partial or full route review and should be done in vehicles equipped with a calibrated distance measuring instrument.

School district should retain written documentation of all route surveys conducted.

A written report on a state conducted route survey will be developed and submitted within 60 days after the completion of the field review unless approved otherwise by the State Superintendent of Public Instruction. The receiving school district will have 30 days to respond to the findings and recommendations from the time that the report is submitted to them.

III. General Guidelines for School Bus Routes

School bus routes are established pursuant to State Statutes; 22-16-4, 1978 NMSA. The local school district approves school bus routes annually pursuant to State Statute.

A. Guidelines for Establishment of Bus Routes with Respect to Statutory Walking Distances - State Statute 22-16-4, 1978 NMSA

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 local district will determine eligibility for transportation. The splitting of apartment dwellings or middle of block separations should be avoided.

B. School Bus Transportation Surveys

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 transloading of passengers at a strategic point; etc.

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

To complete a survey personnel will need calibrated distance measuring instruments so that all recordings are accurate and uniform. District personnel may also use computer software and tracking systems to assist in surveying.

C. Bus Route Development

1. Basic route types

The route designer should be familiar with the types of route layouts which may be used, either individually or in combination. The two basic types of route layouts are:

a. Circular route is a one-way route which originates at the school and circumscribes an area. The circular route has the advantage of equalizing the time which pupils spend on the bus because the bus travels in the same direction on each trip. First child on in the morning, therefore, is the first off at night.

On this type of route, the first children to board the bus are normally transported over a very indirect route before arriving at school. Thus, these children are exposed to more highway hazards than necessary because they ride away from their school destination during the first

half of the trip.

b. Direct (linear) or two-way route is a main route which extends from the school to some terminal point in the district. Regardless of where it is stored, the bus 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 compared to the circular route. The first students on in the morning are the last off in the afternoon. This means that the time spent on the bus is not equalized. Unless some students are required to spend excessive time in transit, this factor is not considered of primary importance because students travel more direct routes than on the circular system. Another appropriate identification for this type of route is "p.m. reverse of a.m."

2. Routing techniques

The designer 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.

a. Transfer route involves the introduction of a transfer into the route types discussed earlier. While often useful technique for improving operating efficiency or shortening the time students spend on the bus, transfers greatly 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 the students can change buses safely. Three different approaches can be used:

1. 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.

2. 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. The two routes which interlock may be either circular or direct routes.

3. Shuttle: finally, 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.

b. 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 designer 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. Turns on busy highways should be avoided. 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.

c. Multi-school route is a type of layout in which students are picked up and dropped off at one of several schools located on the route. Thus, students destined for any one of several schools on the same route may be travelling 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 school schedules if a majority of students are served by buses.

The multi-school route is particularly useful in areas where there are towns, 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. In basic design, the multi-school route can be of either the circular or direct type. It does, however, present quite different timing and scheduling problems, particularly in terms of arrival and departure times at the schools.

3. Types of service

In addition to the basic layout of the routes, the designer 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 trip 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 towns and subdivisions relatively close to school. In this case, the bus can serve a normal circular or 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 facilities throughout the district.

c. The dual-trip plan also known as dual routing, calls for two or more morning trips and two or more afternoon trips by each bus. Like the multiple trip, this arrangement is feasible only in areas where students are concentrated in relatively small areas, and the distances between students and their schools are 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 a mid school, utilize adjacent facilities but have staggered starting and dismissal times.

4. 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 the transportation supervisor 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 in every transportation supervisor's office.

Locate and mark on the map the residences and/or residential areas of all pupils to be transported. The following items may be helpful in accomplishing this step:

(1) Color pins.

(2) Color markers.

(3) Straight edge.

(4) Large work space for map.

(5) All available maps.

(6) Appropriate computer software.

Map tacks or pins are available in a wide range of colors and shapes as well as with distinctive markings. Their use makes it possible to code each student's location by the current grade of the student or by the school to which he is assigned. Pre-school children's residence locations can be added to the map late each semester to aid in

planning changes in routes and schedules.

The flexibility provided by reusable maps and map tacks is an invaluable asset to both the new and experienced transportation planner. Computer software designed to assist in routing is also available.

In many cases, the first bus routes developed by using the techniques discussed above will be "trial routes." These should be field checked and reviewed with experienced bus personnel and school officials. Safety must never be sacrificed for the sake of shorter schedules or reductions in the bus fleet!

The field check and analysis may suggest changes that would not be apparent from an office review of the route maps. 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.

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

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

5. Route design for special services in a unified transportation system

The transportation of students with special needs requires knowledge of transportation systems and the ability to flexibly adjust those

systems. Daily changes and variations occur; and without flexibility in scheduling and routing, it is impossible to maintain an acceptable level of service.

The key to successful implementation of a transportation system which serves children with special needs is preplanning which addresses the following issues:

A. Consideration of each child's Individual Education Program (IEP) and the implementation of transportation services described in the child's program. It is essential, therefore, that school staff, parents, and special education and transportation personnel communicate in the development of IEP's. In many cases, children with special needs do not require special transportation. Whenever possible, these students should be placed on regular bus routes with other children.

B. An analysis to ensure that children with special needs do not proportionally ride buses longer than other students.

C. An analysis to ensure that children with special needs do not lose instructional time because of bus schedules.

D. The number of students with special needs to be transported on regular or special education routes.

E. The identification of pupils' residence in relation to the classroom or service location.

F. The potential growth in the number of students and programs.

G. The types of equipment or adaptive/assistive devices that may be necessary.

H. The possible need for an adult aide.

I. An analysis and selection of loading and unloading areas to ensure the safety of each child.

D. Map guidelines for district information

(1) The map must be current.

(2) The map must be to scale.

(3) The scale should be large, generally two to eight inches per mile depending upon the population density of the district. Two inches to the mile may be sufficient in a sparsely populated area; however, eight inches per mile would be more appropriate in densely populated areas.

(4) The map must indicate all major manmade and natural physical features, including planned as well as present features.

(5) All roads should be clearly identified.

(6) District boundaries and school service area boundaries should be delineated on the map.

(7) Houses and addresses should be shown.

E. Map procedures for district information

Step I -- obtain map

Maps may be secured from the following agencies:

(1) Local or county planning agencies.

(2) Highway planning agencies.

(3) County engineering departments.

(4) State highway departments.

(5) Map information office, united states geological survey Washington, D.C.

(6) Computer software companies.

Step II -- enlarge map to desired scale

Sources available to enlarge basic map to the proper scale are:

(1) Blueprint companies.

(2) Highway departments.

(3) Printing firms.

(4) Computer software companies.

Step III -- add the following information to the map:

(1) School district boundaries.

(2) School locations.

(3) Pupil residences.

(4) Highway construction zones or detours.

Step IV -- locate pupils to be transported.

F. Route Evaluation

Routing and scheduling -- annual evaluation

An evaluation of the district's transportation routing and scheduling system should be conducted at least annually, immediately following the opening of school. A thorough inspection (on a district cycle that does not exceed five (5) years) of the system will identify those areas which need attention to ensure reasonable levels of safety, efficiency and economy.

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 all buses available to load passengers at dismissal time?

4. Is there any overlap or duplication in bus routes that serve the same school facility?

5. Is adequate supervision provided in the school loading areas by the building staff?

6. Are the students required to use their assigned stop?

7. Are safe walking conditions to school or bus stops provided?

8. Are buses overloaded, requiring passengers to stand?

9. Are there buses only partially loaded?

10. Are any students spending more than 1 1/2 hours on a one-way

trip to and from school?

11. Are reporting forms for changing bus stop locations available and used?

12. Are the buses parked in the loading/unloading zones with the engine off?

13. Are buses transporting less than 10 eligible students?

14. Are only eligible students counted for to-and-from funding?

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 where possible?

5. Are stop locations held to a minimum whenever possible?

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 patron convenience?

15. Are changes of address notices made available regularly to the transportation department?

G. School Bus Stop Evaluation

The evaluation should be in conjunction with the route evaluation. The following areas should be investigated (on a district cycle that does not exceed five (5) years) during the annual evaluation.

1. Are school bus stops located in areas where the view is unobstructed for 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 clearly marked with special highway signing when the bus stop is established with less than 500 feet of visibility from either direction?

4. Are school bus stops whenever possible established so that students do not have to cross the roadway?

6. Are school bus stops locations the same for the a.m. and p.m. routes?

7. Are school bus stops located within 25 feet of any intersection?

H. 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 evaluations shall be made on a district cycle that does not exceed five (5) years.

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 operators have adequate space available for entering and exiting with out 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 flashing beacons present around the school site?

8. Are cross walks available in all directions around the school site?

Top/Back to Divisions