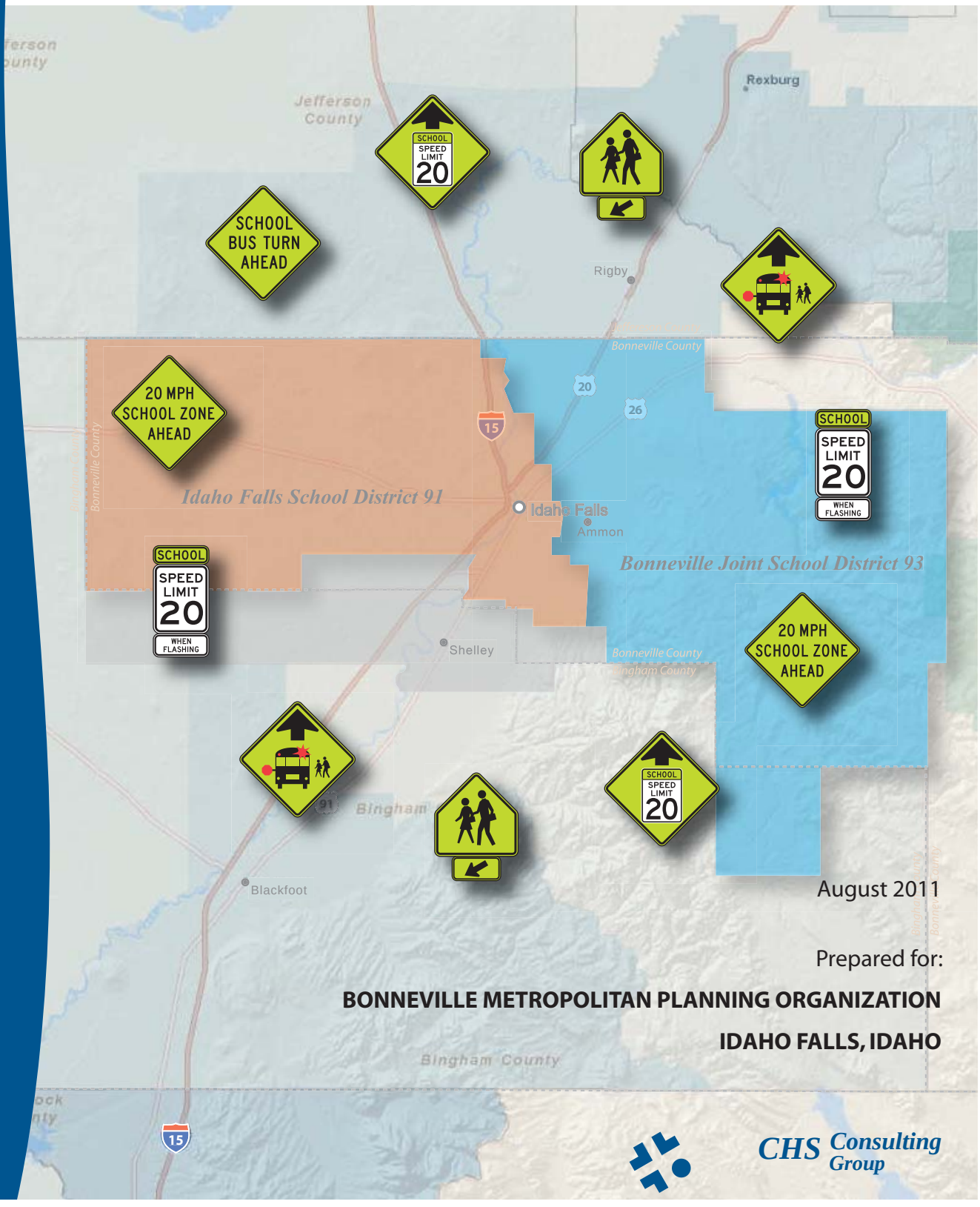
BMPO Area-Wide School Traffic Guidelines



August 2011

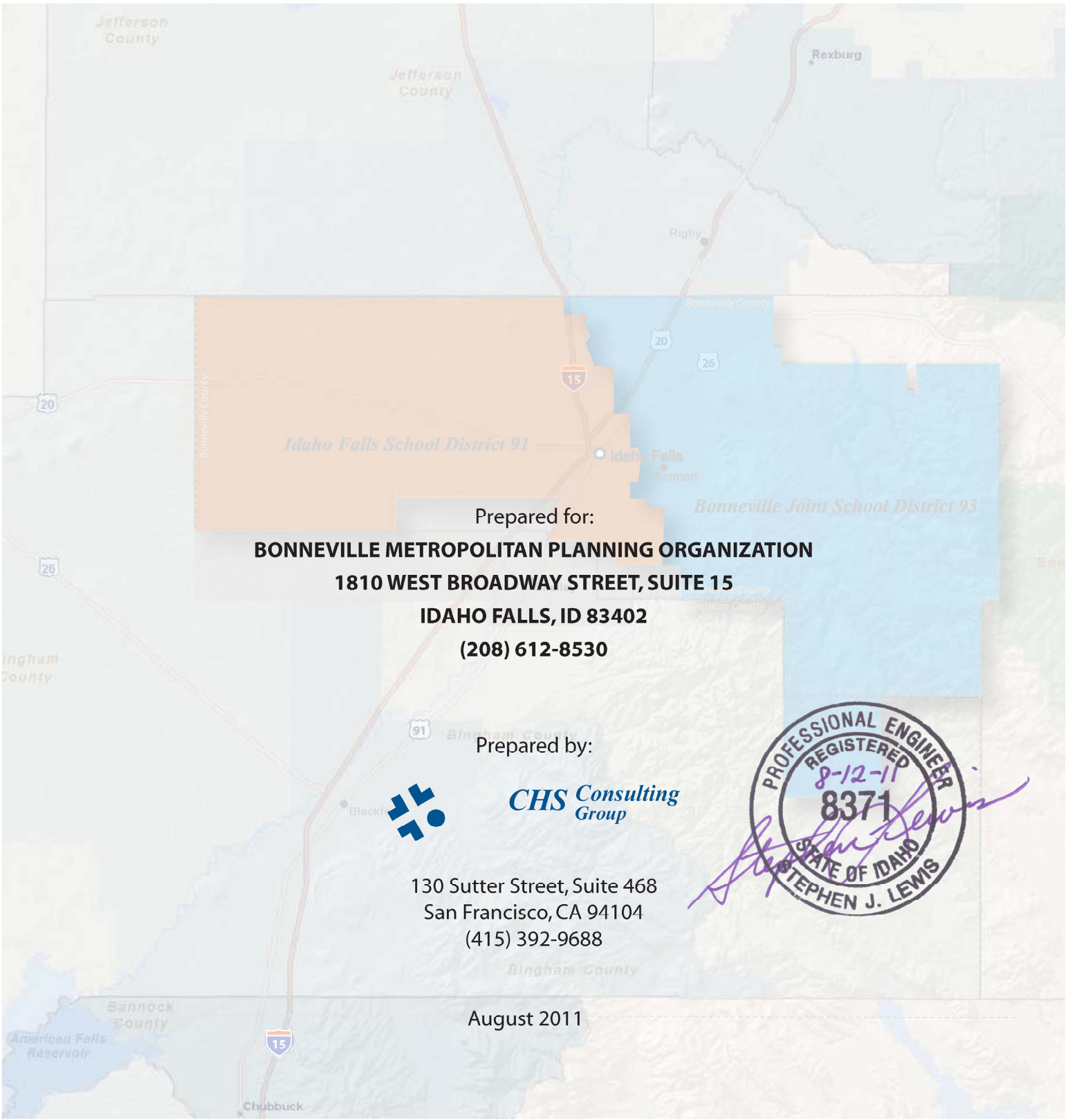
Prepared for:

BONNEVILLE METROPOLITAN PLANNING ORGANIZATION

IDAHO FALLS, IDAHO

CHS Consulting Group

BMPO Area-Wide School Traffic Guidelines



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Introduction

This document provides guidelines for choosing, planning and designing new school sites in the Bonneville Metropolitan Planning Area. It also provides guidance in evaluating existing school sites for safe drop-off and pick-up locations.

Regular meetings of a 13-member steering committee from February to June 2011 assisted in the development of these guidelines. The members of the committee were:

- Lance Bates, City Engineer, City of Ammon
- Guy Bliesner, Health and Safety Coordinator, Bonneville Joint School District 93
- Kevin Eckersell, Public Works Director, Bonneville County
- Ron Folsom, Planning Director, City of Ammon
- Chris Fredericksen, City Engineer, City of Idaho Falls
- Ralph Frost, Transportation Supervisor, Idaho Falls School District 91
- DaNiel Jose, Transportation Planner, Bonneville Metropolitan Planning Organization
- Stephen Lewis, Principal Transportation Engineer, CHS Consulting Group
- Renee Magee, Planning & Building Director, City of Idaho Falls
- David Picanco, Grounds Foreman, Idaho Falls School District 91
- Darrell West, Director, Bonneville Metropolitan Planning Organization
- Margaret Wimborne, Communication Specialist, Idaho Falls School District 91
- Dana Wood, Director of Operations, Idaho Falls School District 91

Choosing a New School Site

In choosing a new school site, several factors should be considered. Schools serve various modes of traffic including walking, bicycling, busing, and carpooling. Ideally, the best locations for schools are in residential neighborhoods serving the students living in those neighborhoods. When located in residential areas, elementary schools should avoid being adjacent to arterials or other high-speed roadways. The higher traffic volumes and speeds on these types of roadways make them incompatible with students walking or bicycling to school, in particular younger students. However, middle/junior high, and high schools should be reasonably accessible from higher-volume roadways (e.g., major collectors or minor arterials, respectively) to accommodate the higher volumes of school-generated traffic. Wherever possible, school attendance boundaries should be drawn to minimize the number of students that would need to cross an arterial street in order to reach the school.

Other access considerations include providing access from two adjacent roadways. This allows for separate entrances for buses and private vehicles and for better distribution of traffic along the adjacent roadways. School driveway intersections must have adequate sight

distance, so locations on a curved roadway or near steep grades should be avoided. In addition, landscaping and monument signs for the school should not restrict sight distance.

The site itself should be evaluated to determine if enough building setback can be provided to allow for sufficient storage of queuing vehicles in the drop-off/pick-up locations. Providing adequate storage space on-site will minimize the possibility of vehicles queuing onto adjacent streets and also discourage drivers dropping students off along the adjacent street instead of on the school campus.

Preparation of a Traffic Impact Study (TIS) is recommended for all new schools in order to evaluate potential off-site traffic impacts and to assist in the selection of appropriate school sites. The traffic impact study will identify an estimate of future traffic volumes on abutting streets, the need for traffic control devices, and the need for pedestrian control. Preparing the TIS prior to the design stage will hopefully avoid costly re-work as well as future traffic problems. It is also recommended that new schools are developed with a Conditional Use Permit for the purpose of coordinating with the city or county planning department and mitigating any potential impacts to the surrounding area.

It is recommended that the school districts develop a cooperative working relationship with the city or county planning department and that coordination occur very early in the school development process, even before sites are acquired, if possible. The earlier that potential issues can be identified in the development process, the less costly those issues will be to resolve and will reduce the number of problems that have to be corrected or retrofit during construction or after.

Site Planning and Design

In general, school site planning should consider a feasible separation of transport modes: buses, cars, pedestrians and bicyclists. Adequate physical space should be provided for all modes of transportation to the degree that each is found on the school site or planned for the future. The physical routes provided for the basic modes of school transportation should be separated as much as possible from each other.

Bus Parking Area

The school site needs to balance the needs of the various users that will be accessing the campus. Buses need an area that will allow drop-off of students close to the school building and not conflict with cars also dropping off students. In addition, separate driveways for buses and cars should be provided to minimize traffic congestion when both buses and cars are entering or exiting the school at the same time. When designing the bus parking area,

buses should not be required to back up to either enter or exit the school. All school bus traffic should be designed as one-way traffic flow, preferably with the service door side of the bus always next to the loading and unloading zone. In addition, students should not have to cross in front of buses to walk to the school buildings. See **FIGURE 1** for examples of bus parking areas.

Whenever possible, roads should not be constructed that completely encircle a school. Areas that students must cross to reach outside activities should be free of all vehicular traffic.

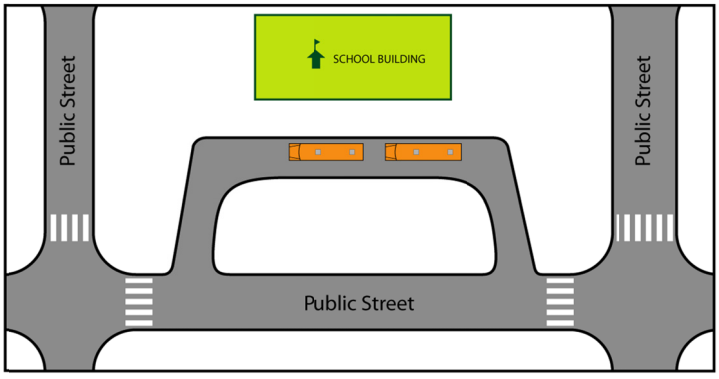
All school bus roads entering onto or exiting from adjacent streets should have a minimum 35- to 50-foot radius turn on the inner edge of pavement; this radius can be increased to 50 to 100 feet if no pedestrian crossings are present. Within the school site, roads should have at least a 60-foot radius on inner edge of pavement on all curves. At least a 50-foot tangent section should be provided between reverse curves. In order to minimize driveway entrance and exit widths, island construction may be required. Driveway openings must conform to City or County requirements. Driveway openings on state highways must be approved by the Idaho Transportation Department.

Curbing, with suitable drainage, should be constructed on all roads utilized by school buses within the school site. Consideration should be given to city or county performance specifications. A minimum of 30 feet should be maintained for one-way traffic and 36 feet for two-way traffic. Roads should be wider on all curves.

For areas that will be constantly utilized by heavy school buses, the type of pavement and base should conform to Idaho Transportation Department specifications.

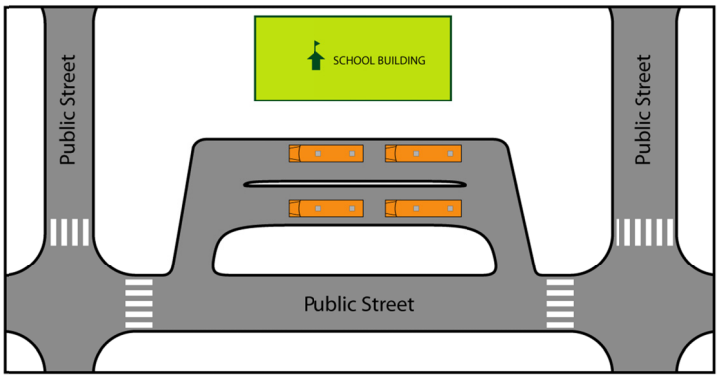
An evaluation checklist for school bus driveways prepared by the State of Idaho is presented in **FIGURE 2**.

FIGURE 1
Bus Loading Area Examples



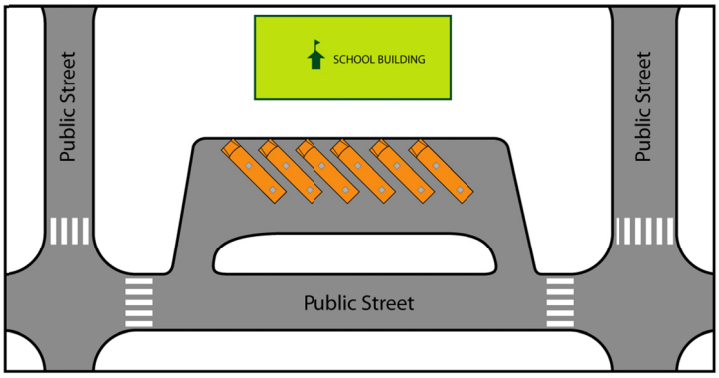
Best Case:

Students drop off along curb and do not cross traffic



Compromise Case:

Accomodates more buses but students may need to cross in front of buses



Avoid Case:

Any configuration that requires buses to back out

FIGURE 2

Evaluation Checklist for School Bus Driveways in the Vicinity of the School

NAME OF THE SCHOOL: _____ DATE: _____

LOCATION OF THE SCHOOL: _____

ITEM	YES	NO	N/A
1. School bus loading areas are provided on the school site.			
2. When loading and unloading of school pupils takes place on main thoroughfare in front of the school, the roadway has a minimum width of 40 feet of hard surface.			
3. The driveway leading to and from the loading and unloading area for school buses has a minimum width of 30 feet of paved surface.			
4. If diagonal parking is provided for buses in the loading and unloading area, a minimum width of 60 feet of paved surface is available.			
5. Parking for loading and unloading of pupils at school is bumper-to-bumper [ ] or diagonal [ ]; in either case, the necessity for backing does not exist.			
6. The school bus is not required to back anywhere on school property.			
7. All school bus movement on the school grounds is one-way in a counter-clockwise direction.			
8. School bus traffic does not completely encircle the school building.			
9. The driver has proper sight distance at all points along the driveway.			
10. Crosswalks for pupils do not exist at the entrance to the school bus driveway.			
11. Separation is maintained between school bus traffic and all other traffic.			
12. Vehicular pickup points for non-bus pupils are on			

Source: State of Idaho, Department of Education, Pupil Transportation Manual, January 2006

FIGURE 2 (continued)
Evaluation Checklist for School Bus Driveways in the Vicinity of the School

ITEM	YES	NO	N/A
separate driveway from that used by school buses.			
13. Curbing and suitable drainage are provided along driveways.			
14. Curbing and driveway construction comply with state highway specifications.			
15. At ingress and egress areas to and from the school, there is a minimum radius on inner edge of driveway pavement from 50 to 100 feet. *			
16. On the school site, there is a minimum radius of inner edge of driveway pavement of 60 feet.			
17. Between reverse curves, at least a 50-foot tangent section is provided.			
18. At ingress and egress points a maximum grade of 2% is adhered to.			
19. A maximum grade of 5% is adhered to on the school bus driveway within the school site.			

* = All school bus roads entering onto or exiting from adjacent streets should have a minimum 35- to 50-foot radius turn on the inner edge of pavement; this radius can be increased to 50 to 100 feet if no pedestrian crossings are present.

Source: State of Idaho, Department of Education, Pupil Transportation Manual, January 2006

Drop-Off/Pick-Up Area

Adequate storage for dropping off and picking up students should be provided to minimize the possibility of vehicles queuing onto adjacent streets. The traffic flow for private vehicles should be a one-way, counter-clockwise pattern to allow for loading and unloading of students on the right side, next to the curb and sidewalk. **FIGURES 3 AND 4** illustrate good and bad examples of drop-off/pick-up zones. On-site stacking lengths vary depending on school type, student population, and the size of the enrollment boundary. **TABLE 1** presents recommended storage lengths for the drop-off/pick-up zone based on studies performed by the North Carolina and South Carolina Departments of Transportation and the Texas Transportation Institute. While the recommended stacking lengths shown in **TABLE 1** are based on national data, a sample of District 91 and District 93 conditions in May 2011 showed similar results.

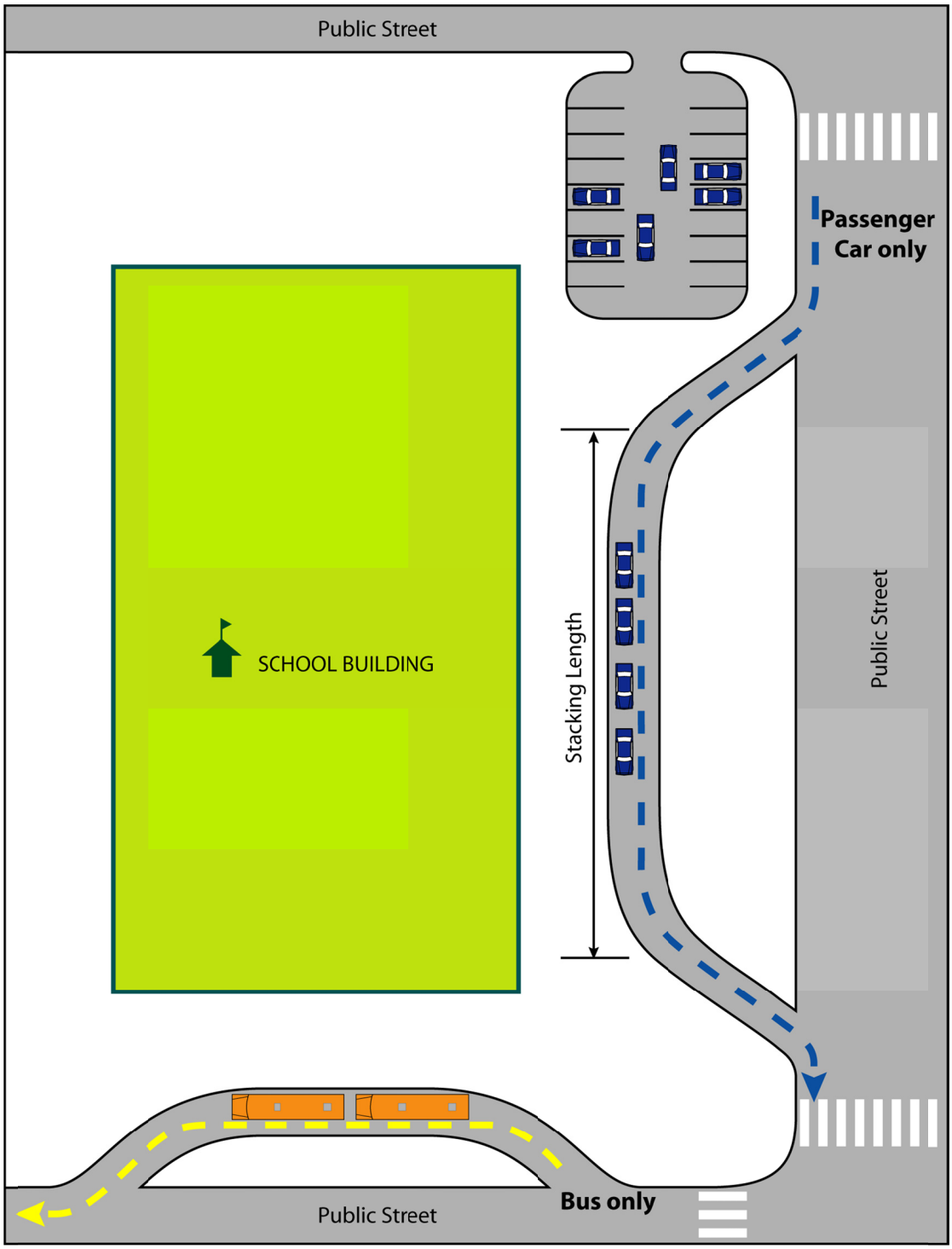
TABLE 1
Recommended On-Site Drop-off/Pick-up Stacking Length

School Type	Student Population	Recommended Minimum Available Stacking Length (see notes 1,2)	
		Urban Area or Small Enrollment Boundary	Rural Area or Large Enrollment Boundary
Elementary	Less than 300	350 feet	500 feet
	300 to 400	500 feet	650 feet
	400 to 500	650 feet	1,000 feet
	500 to 600	825 feet	1,200 feet
	600 or more	1,200 feet	2,000 feet
Middle/ Junior High	Less than 600	1,000 feet	1,200 feet
	600 to 800	1,200 feet	1,500 feet
	800 or more	1,500 feet	2,000 feet
High	Less than 1,000	600 feet	1,000 feet
	1,000 to 1,200	1,000 feet	1,200 feet
	1,200 or more	1,200 feet	1,500 feet

NOTES: 1) During inclement weather, longer stacking lengths will likely be needed and overflow provisions should be made if possible.

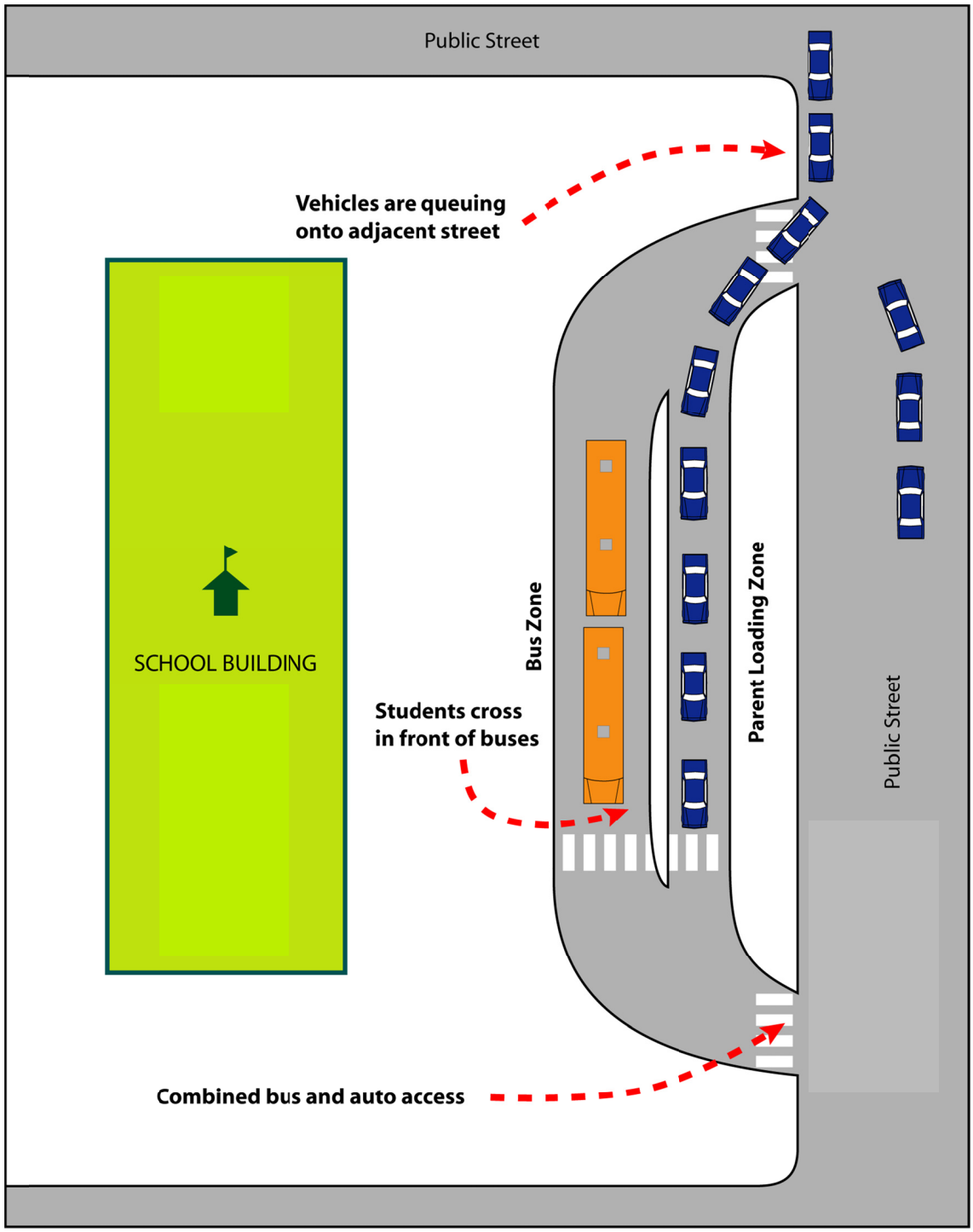
2) The distances shown should be considered as a "starting point" in the site planning process. Each school will offer a unique situation, and the final distances could be affected by local demographics as well as the findings of the school's Traffic Impact Study.

FIGURE 3
Good Examples of Separate Bus and Car Entrance



Note: Driveway locations should meet spacing criteria found in BMPO's *Access Management Plan*.

FIGURE 4
Drop-off/Pick-up Examples to Avoid



Carpooling among parents should be encouraged and supported as a way to reduce the areas needed drop-off/pick-up.

Bicyclists and Pedestrians

Biking and walking to school should be encouraged. Increasing the number of students that bike and walk to school will reduce the number of vehicles on campus during the drop-off and pick-up times. The following items should be provided to encourage biking and walking to school:

- Sidewalks along the school's frontage.
- Pedestrian pathways from the sidewalks to the school buildings should be direct, supplemented by low fencing or other channelization where needed
- Bicycle storage

In addition, a number of comprehensive studies and programs, including Walking School Bus, are currently geared to promoting safety for pedestrians, bicycles, and other non-motorized modes of getting to and from school. There are several key benefits typically cited by these studies and programs: (1) lowered vehicle demand and (2) exercise for the students.

A "Walking School Bus" is a group of children walking to school with one or more adults. It can be as informal as two families taking turns walking their children to school to as structured as a route with meeting points, a timetable and a regularly rotated schedule of trained volunteers. A variation on the Walking School Bus is the Bicycle Train, in which adults supervise children riding their bikes to school. The flexibility of the Walking School Bus makes it appealing to communities of all sizes with varying needs.

Parents often cite safety issues as one of the primary reasons they are reluctant to allow their children to walk to school. Providing adult supervision may help reduce those worries for families who live within walking or bicycling distance to school. The Walking School Bus Program should be provided at each school with a combined effort of the school, the parents, and the City or County.

Other Considerations

Before finalizing the site plan, it should be reviewed by the City or County Engineer.

Driveway locations and spacing should follow the guidelines found in BMPO's *Access Management Plan.*

The site plan should identify areas for snow storage, and these areas should avoid covering or blocking drainage facilities.

Any on-site signage and markings should follow the Manual on Uniform Traffic Control Devices (MUTCD) and *Traffic Control for School Zones in the Bonneville Metropolitan Planning Area* document. This will reinforce the school zone area to drivers and provide consistent traffic control for drivers.
Any off-site improvements that are found to be needed for a new school should be part of that school's Development Agreement with the City or County.

For schools that require students to cross major intersections, larger queuing areas may be needed so that pedestrians are not crowded on the curb. Any school crossing program should have a well-balanced blend of engineering, education, and enforcement — the ideal approach to effective traffic control.

If crossing guards are used, they should be well trained and wear safety vests so they are visible to drivers.

With the current poor economic climate, it is possible that the State Board of Education will reduce reimbursements for Safety Busing, which is the busing of students within the usual 1.5-mile "walking" radius from a school "when...the age or health or safety of the pupil warrants." Typically, Safety Busing is recommended when a pupil would be required to walk along a high-speed roadway without sidewalks or cross an arterial street without traffic signal control. If Safety Busing is reduced, then it can reasonably be expected that the number of students being driven to school will increase.

Existing School Sites

This section should be used to guide discussion of evaluating existing school sites, identifying the issues and recommending solutions. The peak congestion and traffic problems at school occur during the morning drop-off and afternoon pick-up times. An evaluation form and flowchart have been developed to help define the issues and provide possible solutions, as shown in **FIGURE 5** and **FIGURE 6**. Many of the solutions will require staff or volunteer involvement as well as continued enforcement to ensure that the parking and loading areas are used correctly. At the start of every school year, parents and students should be educated about traffic flow at the school and the correct drop-off and pick-up procedures.

FIGURE 5
Existing School Site Evaluation Worksheet

School Name:_____ School District:_____

School Type: Elementary _____ Middle/Jr. High_____ High _____

School Start Time: _____ Dismissal Time: _____

Number of Students:_____

Number of Staff/Faculty:_____

Number of Buses: _____

Number of students walking or bicycling to school: _____

Number of cars dropping off in the morning: _____

Number of cars picking off in the afternoon: _____

Describe existing traffic pattern for school drop-off/pick-up area (attach a diagram if necessary):

Issue/Concern	Y/N	Comments
Students are walking between vehicles in the loading zone		
Cars are queuing onto adjacent streets during morning drop off		
Cars are queuing onto adjacent streets during afternoon pick up		
Unloading of students from cars is slow and disorganized during morning drop off		
Loading of students to cars is slow and disorganized during afternoon pick-up		

FIGURE 6
Existing School Site Evaluation Flowchart

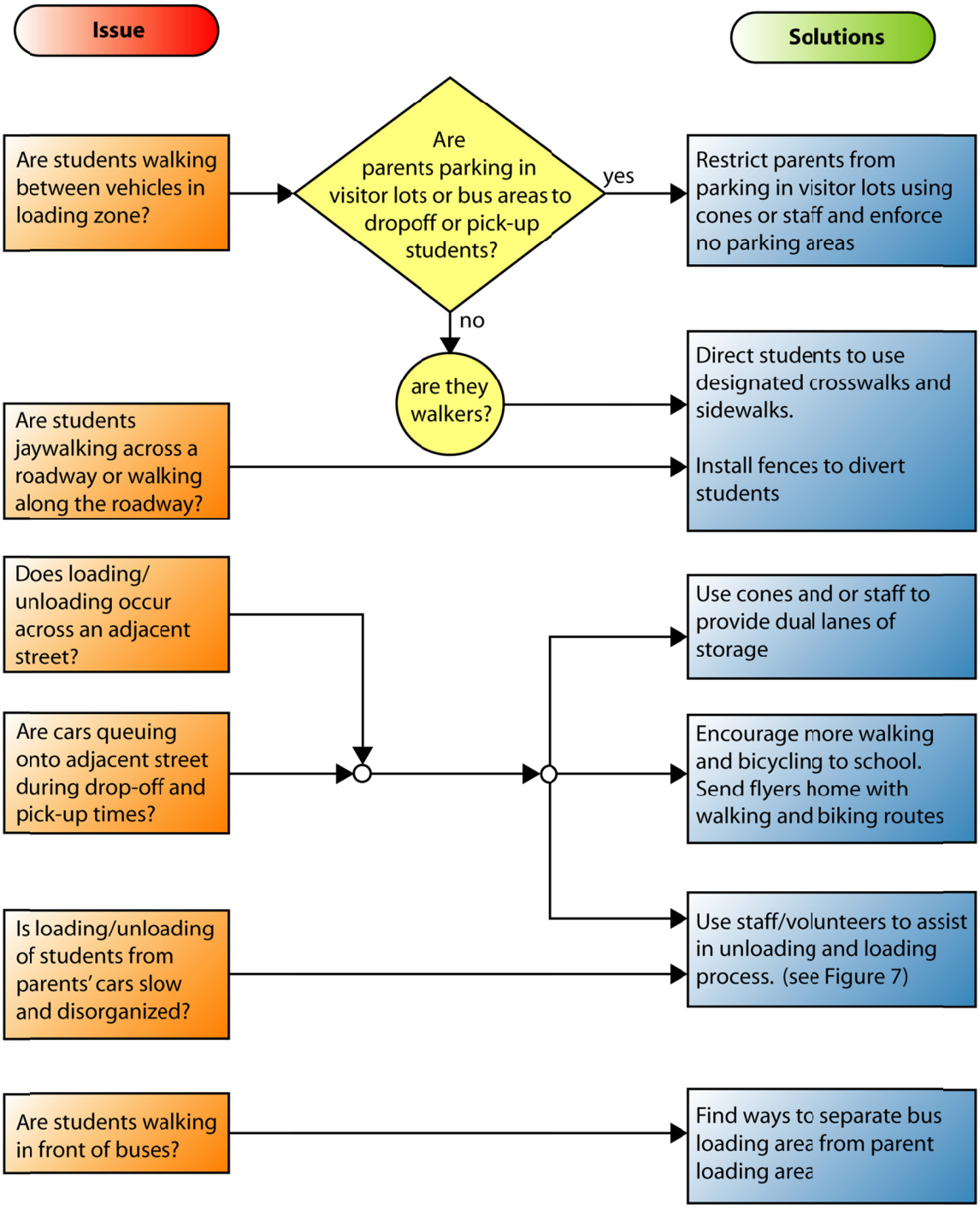
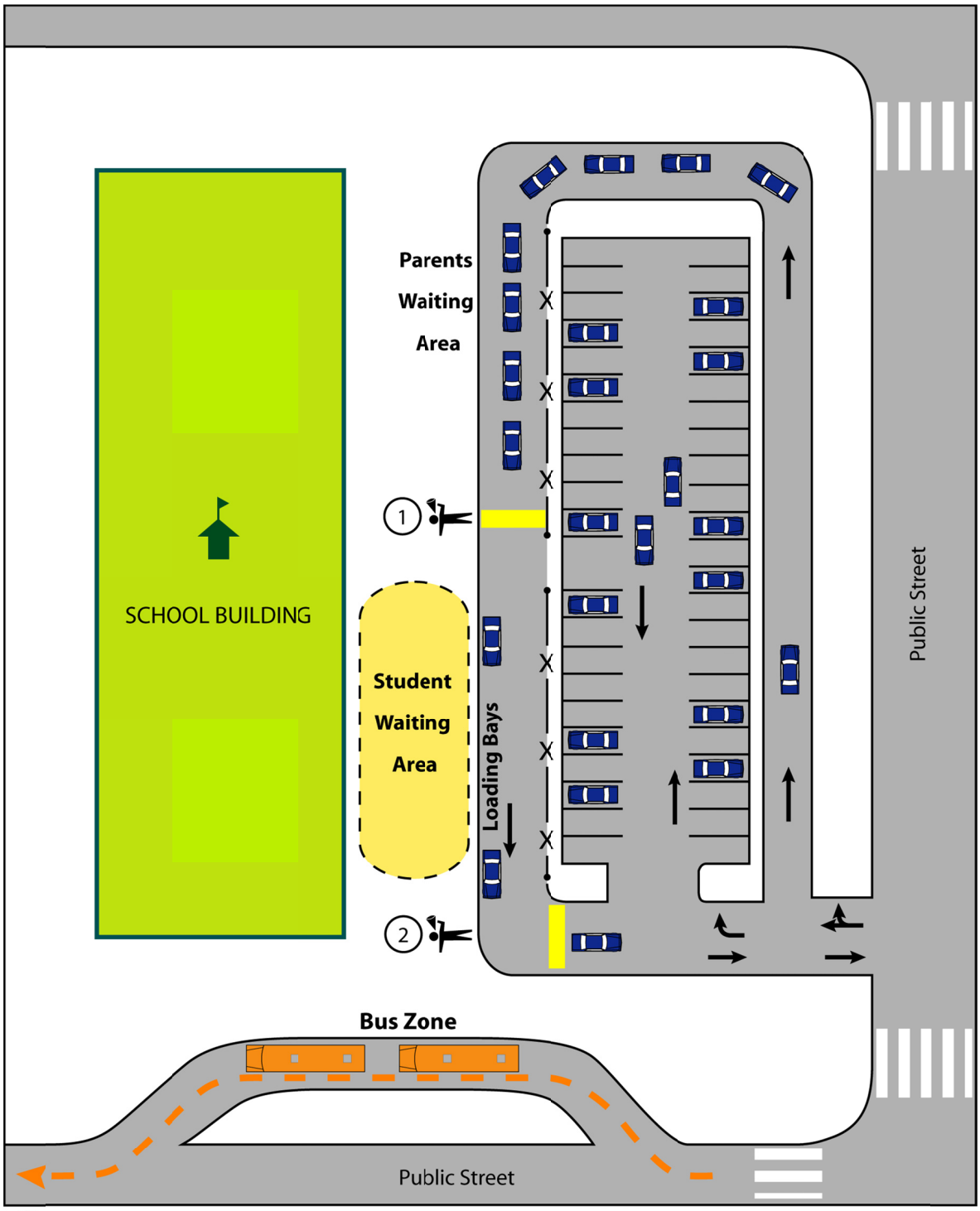


FIGURE 7
Example of Staff-Supervised Loading Zone with Separate Bus Entrance



1. The first Safety Assistant call out the names of students over a walkie-talkie to the second Safety Assistant
2. The second Safety Assistant calls the names of students with a speaker system and directs students to the appropriate bay

Note: Driveway locations should meet spacing criteria found in BMPO's *Access Management Plan*.

References

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