Risk Assessment – Traffic Scenario

Modes of transportation that promote physical activity (as alternatives to automobile dependence) are less likely to be adopted in many cities and towns unless environments are designed or retrofitted to permit walking or bicycling. The location of schools, work sites, and shopping centers near residential areas will require substantial changes in community or regional design.

The following scenario illustrates an event where high traffic congestion leads to vehicle and pedestrian conflicts along routes to school X, inevitably leading to more traffic accidents, injuries and death. Ironically, parents that are most concerned about their child getting safely to school and who decide to drive them, may contribute significantly to the risk of walking or biking to school.

Background

School X

- 1000 Elementary School Students
- There are 2.2 students per household

Parent Drop-Off: Parents drop-off and pick-up students in front of the school along 1st Street or travel southbound on 1st Street and make a U-turn on Avenue B, dropping their children off on the other side of 1st Street. In addition, many students are dropped off in the school’s parking lot which is not designated a drop-off site. And some parents walk their children across the street, using the angled parking spaces in the front of the school.

Bus Drop-off: School X has no off-street bus loading area. Therefore, bus loading and unloading occurs on 1st Street, in front of the school.

Cross Walk: There is currently a crosswalk with yellow stripes at the intersection of 1st and Avenue A. White parallel cross walks are at 1st and Avenue B. There is crossing guard but this position is filled by rotating school staff, none of whom have formal training.

Bicycles: School X has a bicycle rack for students’ bikes on campus. Bike lanes are stripped on Avenue A, a road running adjacent to the school but no other bike lanes are in the neighborhood.

Statistics/ Data:

Adapted from Neighborhood Planning for Safe Routes to School around Pacific Elem. School

<table>
<thead>
<tr>
<th>Status</th>
<th>Baseline</th>
<th>Intervention</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Avg distance to school</td>
<td>Min/hr</td>
<td>mi/hr</td>
</tr>
<tr>
<td>Previous Walkers</td>
<td>0.60 60 2.07 17</td>
<td>6</td>
<td>104</td>
</tr>
<tr>
<td>New Walkers</td>
<td>0.60 60 2.07 17</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Total Impacted</td>
<td>104</td>
<td>348</td>
<td>16</td>
</tr>
<tr>
<td>Total Students</td>
<td>104</td>
<td>348</td>
<td>16</td>
</tr>
</tbody>
</table>

c=2.07 Children’s walking speed (Waters et al, 1998)
d= (a*b)/c [(Average distance to school x minutes in an hour)/ miles per hour] (Nat’l Household Trans Survey, Sacramento MSA, 2001)
e= 6 (3 days x 2 trips) days walked per wk- Based on school survey
f= d*e (Minutes per trip x baseline trips per week)
h= d*g (Minutes per trip x post trips per week)
i= (h-f)/7 (Baseline minutes of PA per week from WTS- Post minutes of PA per week from WTS )7 days per week
j= h-f (Baseline minutes of PA per week from WTS- Post minutes of PA per week from WTS)

Assumption based on Staunton, et