Winthrop
Elementary School
Ipswich, MA

Transportation Feasibility Assessment

March 2, 2016

Prepared for:
Perkins Eastman
50 Franklin Street, Suite 203
Boston, MA 02110

Prepared by:
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Nitsch Project #11251.0
INTRODUCTION

As part of the Feasibility Study for the existing Winthrop Elementary School in Ipswich, Massachusetts, Nitsch Engineering has been retained by Perkins Eastman to observe the existing traffic circulation and queue lengths on adjacent streets during the normal drop-off and pick-up periods at Winthrop Elementary School, located at 65 Central Street; the Paul F. Doyon Memorial School, located at 216 Linebrook Road; and evaluate site improvement options presented by Perkins Eastman at existing school sites and three potential alternate sites for the school.

The focus of this study was to evaluate the existing condition at the Winthrop Elementary School and Paul F. Doyon Memorial School and to provide opinions regarding the possibility of the following five options (See Appendix):

1. Making improvements to circulation as part of the Winthrop Elementary School reconstruction at its current site;

2. Renovate to add, or new construction at Paul F. Doyon Memorial School to include Winthrop Elementary School at the current site; and

3. Moving the Winthrop Elementary School operations to one of the following sites:

   a. Bialek Park at 17 Linebrook Road;
   b. Ipswich Town Hall at 25 Green Street; and
   c. Veterans Memorial Field at Mile Lane.

Traffic operations are secondary to the goals of this report; therefore we did not collect Automatic Traffic Recorder (ATR) counts or Turning Movement Counts (TMC's), we did not analyze or evaluate roadway or intersection capacity, and traffic signal warrants were not performed. These tasks, if required will be performed as part of the Schematic Design Phase of the chosen alternative.

The Locus Map of the study area is shown in Figure 1. A map of the existing Winthrop Elementary School site is shown in Figure 2, and a map of the existing Paul F. Doyon Memorial School site is shown in Figure 3.
Figure 2: Winthrop Elementary School
Figure 3: Paul F. Doyon Memorial School
Site Visit

Nitsch Engineering conducted a site visit on Thursday February 3, 2016 to observe the site circulation associated with the weekday morning drop-off, weekday afternoon pick-up and general queue lengths around the Winthrop Elementary School and Paul F. Doyon Memorial School sites. The weekday morning drop-off observation occurred during cloudy conditions with a temperature of 21 degrees. The weekday afternoon pick-up activity occurred during rainy conditions with a temperature of 37 degrees.

1. Winthrop Elementary School

1.1. Site Access and Egress

Winthrop Elementary School is located at 65 Central Street (Route 1A) in Ipswich, on the north side of the road and to the west of Ipswich Fire Department. The School is mainly accessed from Central Street, and occasionally from Manning Street via a driveway to the north of the Fire Department. The main access and egress to the school (parental drop-off and pick-up, as well as the teachers and staff) occurs from two cur cus on Central Street. Concrete sidewalks are present at both sides of Central Street.

1.2. Winthrop Elementary School Traffic Circulation and Pick-up/Drop-off

Existing Morning Drop-off Circulation via:

Central Street

The Winthrop Elementary School traffic arrives at Central Street from 7:15 AM through 9:00 AM. We observed that parents arrive and proceed to drop-off their children at the school’s designated drop-off/pick-up loop driveway. A total of 135 parental drop-offs were observed during the morning. Buses arrive at Central Street from 8:30 AM through 8:45 AM. Buses enter and exit the site from Central Street, via the exclusive bus driveway. After dropping off students, buses leave the site. A total of 3 buses and 1 minibus drop off approximately 145 students at the school. At the time of the site visit we observed ten student walkers, and no bicyclists at this entrance. 62 vehicles exiting the site were observed travelling northbound on Central Street while 69 vehicles were observed traveling southbound.

Manning Street

The Winthrop Elementary School traffic arrives at Manning Street from 8:00 AM through 8:30 AM. We observed that some parents arrive and park at the parking lot and walk their children to the school. A total of 4 parental drop-offs were observed during the morning. At the time of the site visit we did not observe any student walkers and bicyclists at this entrance.
Existing Afternoon Pick-up Circulation via:

Central Street

The afternoon pick-up period occurs approximately from 2:00 PM to 3:30 PM. Parents start arriving around 2:00 PM and queue up at the school's parking lot to wait for their children. We observed a double stacked 12-car queue at the parking lot during the pick-up period. Once they have collected their children they leave via Central Street, and normal traffic returns around 3:30 PM. A total of 100 parental pick-up vehicles were observed during afternoon dismissal. Buses enter and exit the site from Central Street. A total of 3 buses and 1 minibus pick up students at the School's exclusive bus driveway. At the time of the site visit we didn't observe any students walkers or bicyclists. 48 vehicles accessing the site were travelling southbound on Central Street while 53 vehicles were traveling northbound.

Manning Street

The afternoon pick-up period occurs approximately from 2:00 PM to 3:30 PM. Parents start arriving around 2:00 PM and queue up at the school's main parking lot to wait for their children. At the time of the observation 1 parental pick-up vehicle was observed during afternoon dismissal. At the time of the site visit we didn't observe any students walkers or bicyclists.

Table 1 quantifies the parent and bus drop-off/pick-up totals for the school.

<table>
<thead>
<tr>
<th>Location</th>
<th>Central Street</th>
<th>Manning Street</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Parent</td>
<td>Bus</td>
</tr>
<tr>
<td>Time</td>
<td>Drop-Off</td>
<td>Pick-Up</td>
</tr>
<tr>
<td>AM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7:15 - 7:30</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>7:30 - 7:45</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>7:45 - 8:00</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>8:00 - 8:15</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>8:15 - 8:30</td>
<td>26</td>
<td>3+1 MB</td>
</tr>
<tr>
<td>8:30 - 8:45</td>
<td>68</td>
<td></td>
</tr>
<tr>
<td>8:45 - 9:00</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td>PM</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>2:00 - 2:15</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>2:15 - 2:30</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>2:30 - 2:45</td>
<td>39</td>
<td>3+1 MB</td>
</tr>
<tr>
<td>2:45 - 3:00</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>3:00 - 3:15</td>
<td></td>
<td>3+1 MB</td>
</tr>
<tr>
<td>TOTAL</td>
<td>135</td>
<td>3+1 MB</td>
</tr>
</tbody>
</table>

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Figure 4: Winthrop Elementary School AM Circulation
Figure 5: Winthrop Elementary School PM Circulation
1.3. Winthrop Elementary School Parking Supply and Demand

Nitsch Engineering performed a parking supply and demand count on February 3, 2016. The utilization of the lot was taken at 10:00 AM. Figure 6 shows an overview of the Winthrop Elementary School parking lot, the total parking spaces, parking space type, and lot utilization.
Figure 6: Winthrop Elementary Parking Lot Overview
As can be seen from Figure 6, a total of 92 parking spaces were counted within the parking lot at Winthrop Elementary School 2 of which are accessible spaces. This does not meet the Architectural Access Board (AAB) Code of Massachusetts Regulations (521 CMR) for the minimum required number of handicapped parking spaces of 4. The two accessible spaces were not utilized at the time of observation. The overall lot utilization at this parking lot was 84% at the time of observation.

2. Paul F. Doyon Memorial School

2.1. Site Access and Egress

Paul F. Doyon Memorial School is located at 216 Linebrook Road in Ipswich, on the south side of the road. The access and egress to the school (parental drop-off and pick-up, as well as the teachers and staff) occurs from two cur cuts on Linebrook Road. There are no sidewalks on either sides of Linebrook Road.

2.2. Paul F. Doyon Memorial School Traffic Circulation and Pick-up/Drop-off

**Existing Morning Drop-off Circulation via:**

The Paul F. Doyon Memorial School traffic arrives at Linebrook Road from 7:15 AM through 9:00 AM. We observed that parents arrive and proceed to drop-off their children at the school's front door. A total of 98 parental drop-offs were observed during the morning. Buses arrive at Linebrook Road from 8:30 AM through 8:45 AM. Buses enter and exit the site from Linebrook Road. After dropping off students, buses leave the site. A total of 5 buses and 1 minibus drop off approximately 301 students at the school. At the time of the site visit we did not observe any student walkers, nor bicyclists at the school. 64 vehicles exiting the site were observed travelling eastbound on Linebrook Road while 34 vehicles were observed traveling westbound.

**Existing Afternoon Pick-up Circulation via:**

The afternoon pick-up period occurs approximately from 2:00 PM to 3:30 PM. Parents start arriving around 2:00 PM and proceed to the small lot/loading area to the west of the school, turn around and head back to queue up at the driveway before reentering the school's parking lot to wait for their children. We observed a 22-car queue at the parking lot during the pick-up period. Once they have collected their children they leave via Linebrook Road, and normal traffic returns around 3:30 PM. A total of 71 parental pick-up vehicles were observed during afternoon dismissal. Buses enter and exit the site from Linebrook Road. A total of 5 buses and 1 minibus pick up approximately 301 students at the School's exclusive bus area at the east portion of the parking lot. At the time of the site visit we did not observe any student walkers, nor bicyclists at the school. 41 vehicles accessing the School were travelling westbound on Linebrook while 30 vehicles were traveling eastbound.
Table 2 quantifies the parent and bus drop-off/pick-up totals for the school.

<table>
<thead>
<tr>
<th>Location</th>
<th>Central Street</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Parent</td>
</tr>
<tr>
<td>Time</td>
<td>Drop-Off</td>
</tr>
<tr>
<td><strong>AM</strong></td>
<td></td>
</tr>
<tr>
<td>7:15 - 7:30</td>
<td>1</td>
</tr>
<tr>
<td>7:30 - 7:45</td>
<td>2</td>
</tr>
<tr>
<td>7:45 - 8:00</td>
<td>1</td>
</tr>
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<td>8:00 - 8:15</td>
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<td>8:15 - 8:30</td>
<td>10</td>
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<tr>
<td>8:30 - 8:45</td>
<td>49</td>
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<td>8:45 - 9:00</td>
<td>33</td>
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<td><strong>PM</strong></td>
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<tr>
<td>3:15 - 3:30</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>98</td>
</tr>
</tbody>
</table>
Figure 7: Doyon Memorial School AM Circulation
Figure 8: Doyon Memorial School PM Circulation
Paul F. Doyon Memorial School Parking Supply and Demand

Nitsch Engineering performed a parking supply and demand count on February 3, 2016. The utilization of the lot was taken at 10:00 AM. Figure 6 shows an overview of the Paul F. Doyon Memorial School parking lot, the total parking spaces, parking space type, and lot utilization.
Figure 9: Doyon Memorial School Parking Lot Overview
As can be seen from Figure 9, a total of 86 parking spaces were counted within the parking lot at Paul F. Doyon Memorial School, 2 of which are accessible spaces. This does not meet the Architectural Access Board (AAB) Code of Massachusetts Regulations (521 CMR) for the minimum required number of handicapped parking spaces of 4. The two accessible spaces were not utilized at the time of observation. The overall lot utilization at this parking lot was 77% at the time of observation.
### Assessment

1.2 Nitsch Engineering has developed the following evaluation matrix based on the above observations and the concepts provided by WLA

<table>
<thead>
<tr>
<th>Site</th>
<th>Improvement</th>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
</table>
| Winthrop Elementary school         | Renovate all existing, build addition, or new construction | • On street traffic will not change much from the existing.  
• Opportunity for improved condition for pick-up and drop-off  
• More convenient drop-off on the site.  
• Improved onsite flow  
• Additional Parking. | • Construction Activity,  
• Construction Period Traffic,  
• Worker Parking, Temporary classrooms  
• Students Safety during construction,  
• Impact to Central Street.  
• Impact to neighbors; |
| Paul F. Doyon Memorial School      | Renovate all existing, build addition, or new construction | • Safer condition for pick-up and drop-off  
• Opportunity for improved condition for pick-up and drop-off | • No sidewalks,  
• Safe road to school?  
• Construction Activity,  
• Construction Period Traffic,  
• Worker Parking, additional off-site traffic,  
• may require turning lanes,  
• site distance may be challenging,  
• Additional on street traffic,  
• Parking? |
| Bialek Park Site                   | New detached school.                              | • Opportunity for improved condition for pick-up and drop-off,  
• Improved onsite flow,  
• Additional Parking,  
• Closer to the Town Center | • Sidewalks only on one side of the street,  
• Safe road to school?  
• Proximity to a rail road,  
• Construction Activity,  
• Construction Period Traffic,  
• Worker Parking, additional off-site traffic,  
• May require turning lanes,  
• Site distance may be challenging,  
• Impact to neighbors; |
| Ipswich Town Hall Site | New detached school. | • Opportunity for improved condition for pick-up and drop-off,  
• Improved onsite flow,  
• Additional Parking,  
• Safe Roads to School,  
• More centralized location. | • Construction Activity,  
• Construction Period Traffic, Worker Parking,  
• Additional off-site traffic,  
• Impact to neighbors; |
|-----------------------|----------------------|-------------------------------------------------------------|---------------------------------------------------------------|
| Veterans Memorial Field Site | New detached school. | • Opportunity for improved condition for pick-up and drop-off,  
• Improved onsite flow  
• Additional Parking. | • No sidewalks,  
• Safe road to school?  
• Construction Activity,  
• Construction Period Traffic, Worker Parking,  
• may require turning lanes,  
• site distance may be challenging,  
• Additional off-site traffic,  
• May require geometric changes to the intersection, may require signal timing changes |
Appendix

Winthrop Elementary School
Ipswich, MA

Transportation Feasibility Assessment

March 2, 2016

Prepared for:

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Boston, MA 02110

Prepared by:

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Nitsch Project #11251.0
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PERKINS EASTMAN
50 FRANKLIN STREET, SUITE 203
BOSTON, MA 02110

SITE SKETCH
C-3.0
1505.1

ZONING REQUIREMENTS
ZONE: RRA
MIN. AREA: 82.20 S.F.
MIN. WIDTH: 125 FT.
MIN. FRONTAGE: 125 FT.
MIN. BUILDING SETBACKS:
FRONT: 50 FT.
SIDE: 30 FT.
REAR: 30 FT.
MAX. BLDG AREA: 2,000
MAX. FUR AREA: N/A
MIN. OPEN SPACE: 50%

EXISTING CONDITIONS
PROPOSED USE: EDUCATIONAL (PERMITTED)
MIN. AREA: 14.2 AC.
MIN. WIDTH: 700 FT.
MIN. FRONTAGE: 700 FT.
BLDG LIMIT: 123,710 SQ.FT.
OPEN SPACE REQ'D: 309,276 SQ.FT.

ASSESSORS MAP
MAP 300, PARCEL 143

OVERLAY DISTRICTS
GROUNDWATER PROTECTION AREA: ZONE II

UTILITIES
WATER: PRESENT ALONG LINEBROOK ROAD
ELEC/FEED: PRESENT ALONG LINEBROOK ROAD
SEWER: PRESENT ALONG LINEBROOK ROAD
GAS: PRESENT ALONG LINEBROOK ROAD

SOIL CLASSIFICATION
HYDROLOGICAL GROUP B (FINE SANDY LOAM/LOAMY SAND) EASTERN PORTION OF MAIN SITE, C/D ELSEWHERE

1 INCH = 200 FT.