Charter School TIA Findings

- Trip Generation
- Entering / Exiting Distribution
- Peak Hour Factor
- Queuing
Charter School Statistics

>100 in DFW area

(http://www.dfwchild.com/DFWEverything/cat34/Charter-Schools#)
DFW Data Collection Locations

K-8 (8 Schools)
- Enrollment Range: 220 – 1,383 Students
- Average Enrollment: 804 Students

K-12 (3 Schools)
- Enrollment Range: 332 – 1,545 Students
- Average Enrollment: 817 Students
Trip Generation
Trip Generation Characteristics
K-8 (AM)

Range of Rates = 0.87 - 1.38

y = 1.14x
Trip Generation Characteristics
K-8 (PM)

Range of Rates = 0.52 - 0.85

y = 0.67x
Trip Generation Characteristics
K-12 (AM)

Range of Rates = 0.77 - 1.24

y = 1.04x

Number of Students

Trips

0 200 400 600 800 1000 1200 1400 1600

0 200 400 600 800 1000 1200 1400 1600
Trip Generation Characteristics
K-12 (PM)

\[ y = 0.70x \]

Range of Rates = 0.48 - 0.90
Comparisons to ITE Trip Generation

534 = Private School (K-8)
536 = Private School (K-12)
Comparisons to ITE Trip Generation

Trip Rates

<table>
<thead>
<tr>
<th>Time</th>
<th>ITE</th>
<th>DFW</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM</td>
<td>0.90 (n=10)</td>
<td>0.67 (n=8)</td>
<td>+27%</td>
</tr>
<tr>
<td>PM</td>
<td>0.60 (n=8)</td>
<td>0.70 (n=3)</td>
<td>+21%</td>
</tr>
<tr>
<td>AM</td>
<td>1.14 (n=8)</td>
<td>1.04 (n=3)</td>
<td>+29%</td>
</tr>
<tr>
<td>PM</td>
<td>0.81 (n=5)</td>
<td>0.58 (n=4)</td>
<td></td>
</tr>
</tbody>
</table>

ITE: [Graph Color]
DFW: [Graph Color]

Comparison to ITE Trip Generation (K-8)
800 Students

AM (K-8)
ITE: 720
DFW: 912
Difference: +192

PM (K-8)
ITE: 480
DFW: 536
Difference: +56
Comparison to ITE Trip Generation (K-12)
800 Students

<table>
<thead>
<tr>
<th></th>
<th>AM (K-12)</th>
<th>PM (K-12)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITE</td>
<td>648</td>
<td>464</td>
</tr>
<tr>
<td>DFW</td>
<td>832</td>
<td>560</td>
</tr>
</tbody>
</table>

+ 184
+ 96

ITE vs. DFW
Entering / Exiting Distribution
Comparison to ITE Trip Generation Entering / Exiting Data (K-8)

<table>
<thead>
<tr>
<th></th>
<th>AM</th>
<th>PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITE</td>
<td>55%</td>
<td>45%</td>
</tr>
<tr>
<td></td>
<td>47%</td>
<td>53%</td>
</tr>
<tr>
<td>DFW</td>
<td>54%</td>
<td>46%</td>
</tr>
<tr>
<td></td>
<td>47%</td>
<td>53%</td>
</tr>
</tbody>
</table>

- **ITE**
  - AM: Entering 55%, Exiting 45%
  - PM: Entering 47%, Exiting 53%

- **DFW**
  - AM: Entering 54%, Exiting 46%
  - PM: Entering 47%, Exiting 53%

- Yellow = Entering
- Gray = Exiting
Comparison to ITE Trip Generation Entering / Exiting Data (K-12)

<table>
<thead>
<tr>
<th></th>
<th>AM</th>
<th>PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITE</td>
<td>61%</td>
<td>42%</td>
</tr>
<tr>
<td></td>
<td>39%</td>
<td>58%</td>
</tr>
<tr>
<td>DFW</td>
<td>60%</td>
<td>45%</td>
</tr>
<tr>
<td></td>
<td>40%</td>
<td>55%</td>
</tr>
</tbody>
</table>

=Entering =Exiting
Peak Hour Factor
Peak Hour Factor (PHF)

- AM (K-8): 0.58 Entering, 0.59 Exiting
- PM (K-8): 0.71 Entering, 0.57 Exiting
- AM (K-12): 0.56 Entering, 0.49 Exiting
- PM (K-12): 0.68 Entering, 0.51 Exiting

PHF Value: 0.92
Impact on Traffic Analysis

- Higher Trip Generation
- Lower PHF
Comparison to ITE Trip Generation (K-8)  
800 Students

AM (K-8)  
ITE: 720
DFW: 912  
+ 192

PM (K-8)  
ITE: 480
DFW: 536  
+ 56

ITE  DFW
Trip Generation + PHF Impact (K-8)
800 Students

AM (K-8)

ITE

PHF = 0.60

783

PHF = 0.92

1,520

+ 737

PM (K-8)

ITE

PHF = 0.60

522

PHF = 0.92

893

+ 371

DFW
Comparison to ITE Trip Generation (K-12) 
800 Students

AM
ITE: 648
DFW: 832
+ 184

PM
ITE: 464
DFW: 560
+ 96

ITE  DFW
Trip Generation + PHF Impact (K-12)  
800 Students

AM

ITE

PHF = 0.60

704

PM

ITE

PHF = 0.92

504

DFW

PHF = 0.60

933

PHF = 0.92

+ 429

+ 683
Queuing
Factors in Queuing Operations (PM)

- Arriving Early
- Number of Dismissals
- Time Between Dismissals
- Number of Students in Dismissal
- Grades in Dismissal
Factors in Queuing Operations (PM)

- Number of Pick-Up Locations
- Distance to Walk to Vehicles
- Staff Assistance/Presence
- Pick-Up Technology Used (if any)

***Amount of On-site Queuing Available***
Queuing Operations
Pick-Up Technologies
Queuing Operation Sample

Queued Vehicles

Number of Queued Vehicles

Time
## Queuing Summary

<table>
<thead>
<tr>
<th>Queue Rate (feet/student)</th>
<th>Number of Students</th>
<th>Number of Dismissals</th>
<th>Time Between Dismissals (minutes)</th>
<th>Number of Pick-Up Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5</td>
<td>441</td>
<td>3</td>
<td>30</td>
<td>1</td>
</tr>
<tr>
<td>2.1</td>
<td>803</td>
<td>2</td>
<td>30</td>
<td>3</td>
</tr>
<tr>
<td>3.2</td>
<td>795</td>
<td>2</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>4.2</td>
<td>1342</td>
<td>2</td>
<td>30</td>
<td>5</td>
</tr>
<tr>
<td>4.8</td>
<td>670</td>
<td>1</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>800</td>
<td>1</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>5.1</td>
<td>815</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>5.1</td>
<td>1342</td>
<td>2</td>
<td>15</td>
<td>2</td>
</tr>
</tbody>
</table>
Queuing Relationships (Enrollment)

- Queue Rate (ft/student)
- Number of Students
- # of Dismissals

- Plot shows points indicating the relationship between queue rate and number of students, with # of dismissals as a variable.

- Points are plotted at different queue rates and number of students, indicating varying # of dismissals.
Queuing Relationships
(Number of Pick-Up Locations)

Number of Pick-Up Locations

Queue Rate (ft/student)

# of Dismissals
Queuing Relationships
(Number of Dismissals)
Conclusions

■ DFW Trip Generation > ITE Trip Generation
■ % Entering / % Exiting Similar
■ Use of Non-Default PHF
■ Queuing Dependent on Many Operational Factors
  - Site-by-site
  - Amount of queuing available on site
  - Number of dismissals
CHARTER SCHOOL
TIA FINDINGS

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