

TECHNICAL MEMORANDUM

TO: Gregory A. Buchal, P.E., Project Manager
LARSON ENGINEERING INC.

Early Childhood Family Center, Project Management Team
STILLWATER AREA PUBLIC SCHOOLS – DISTRICT 834

FROM: John Hagen, PE, PTOE, Senior Associate
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DATE: February 7, 2010

SUBJECT: EARLY CHILDHOOD FAMILY CENTER – STILLWATER JUNIOR HIGH SCHOOL SITE
TRAFFIC IMPACT STUDY

INTRODUCTION

As requested, we have completed a traffic impact study for the proposed Early Childhood Family Center (ECFC) co-located on the Stillwater Junior High School Site in the City of Stillwater, Minnesota. The junior high school campus site is located north of Orleans Street and west of 6th Street (see Figure 1: Study Area Project Location Map).

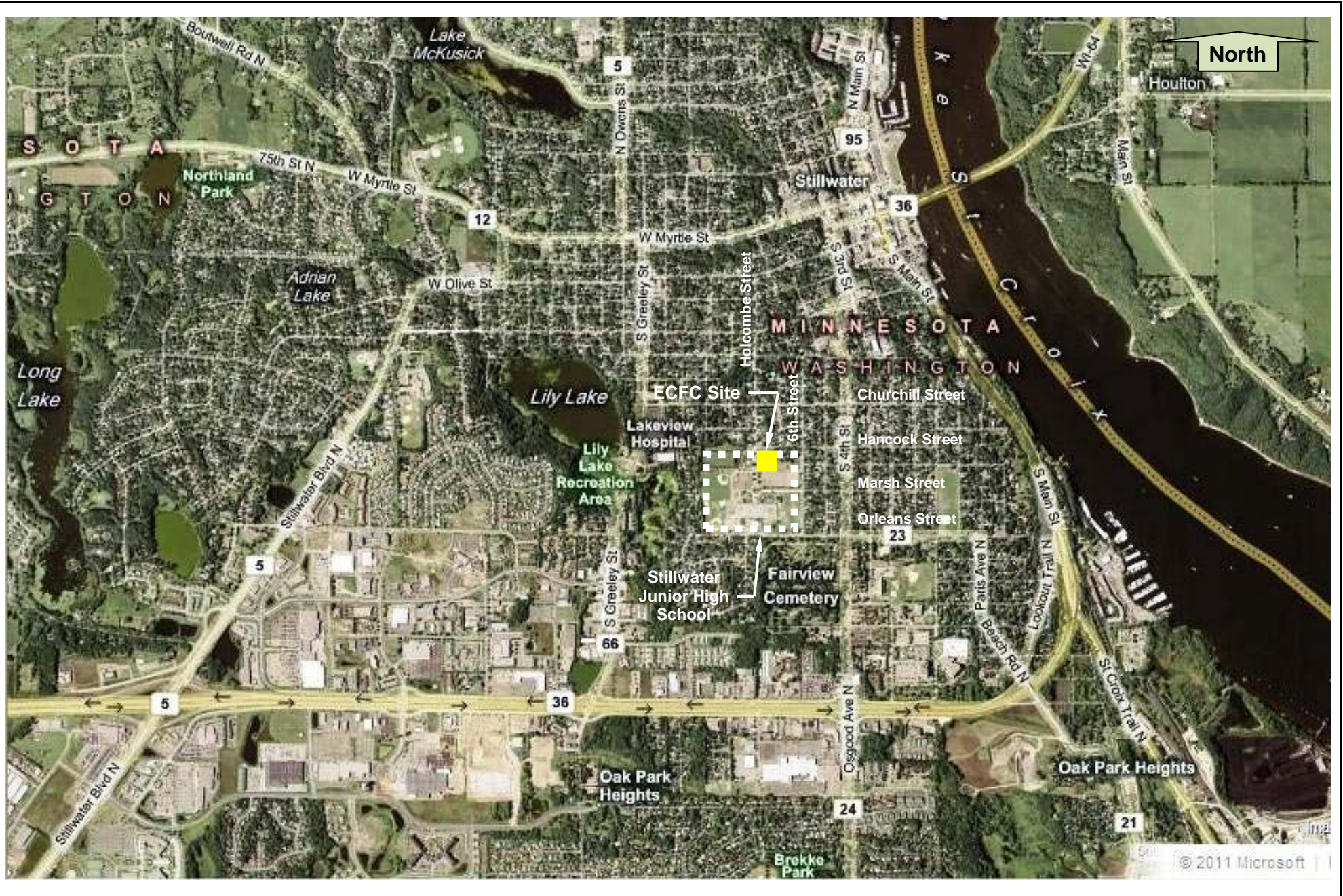
We understand that the purpose of this traffic impact study is to address the following issues and concerns:

- ECFC site generated faculty, student drop off/pick up, visitor and school bus traffic levels, and the distribution of ECFC generated traffic on the supporting roadways once the ECFC is co-located on the Stillwater Junior High School site.
- Possible residential neighborhood traffic impacts related to the ECFC generated traffic on the supporting roadways and possible traffic impact mitigation strategies.

EXISTING CONDITIONS

Morning and afternoon peak period (7:00 to 9:00 AM and 2:00 to 4:00 PM) turning movement counts were collected by Larson Engineering Inc. staff at selected study area intersections on Tuesday, January 25th, 2011. Based on these traffic counts the junior high school related peak hours begin at 7:15 AM and 2:15 PM. Existing roadway and intersection geometrics and traffic control were verified based on recent aerial and street view photography.

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Study Area Project Location Map

Proposed Early Childhood Family Center – Stillwater Junior High School Site – Traffic Impact Study
 Larson Engineering Inc./Stillwater Area Public Schools District 834

Figure 1

The existing average daily traffic (ADT) volumes presented in this traffic impact study are estimates based on the City of Stillwater 2009 Traffic Flow Map, the previous study (2008) of the junior high school bus related site improvements and the morning and afternoon peak period turning movement counts collected at selected study area intersections as part of this study.

PROPOSED STILLWATER EARLY CHILDHOOD FAMILY CENTER

The new Early Childhood Family Center (ECFC) is proposed to be co-located on the existing Stillwater Junior High School Site (see Figure 2: Existing Site Aerial Photograph). As shown in Figure 3, the proposed ECFC concept site plan is well configured in terms of traffic circulation, and provides good access to the supporting transportation system. The plan takes advantage of existing parking on the Stillwater Junior High School site and provides adequate space for ECFC play areas. The plan also results in locating the proposed ECFC close to an elementary school which may allow integration of other school programs.

Based on information provided by the school district, most ECFC clients/students (65 percent) will arrive by passenger vehicle, half of which will be dropped-off/picked-up by parents or guardians with the other half being accompanied by their parents or guardians for the length of their visit. The remaining clients/students (35 percent) will arrive by bus.

The drop-off/pick-up area is proposed at the main building entrance and appears to operate as a one-way westbound roadway on the south side of the proposed ECFC building. There appears to be a service access on the north side of the proposed ECFC building on Hancock Street. As passenger vehicles approach this one-way westbound entrance to the drop-off/pick-up from both directions it is recommended that the passenger vehicle turning radius be checked for an eastbound left-turn from the main circulation roadway to the westbound drop-off/pick-up roadway. On-site drop-off/pick-up area guide signing should be considered to ensure clients/students are dropped-off/picked-up on the site and not in the adjacent neighborhoods.

A review of the ECFC and junior high school hourly traffic profiles indicates that there would be minimal overlap of peak hour traffic volumes. The ECFC morning peak hour begins at 8:30 AM with traffic entering and exiting the site more consistently throughout the day with the afternoon peak hour beginning at 3:00 PM. According to information provided, there would be minimal programs that run into the late afternoon or early evening hours.

Parking for the proposed ECFC will take advantage of existing parking for the junior high school. ECFC clients/students and/or their parents or guardians who park at the ECFC will access the building as pedestrians by crossing the main east/west roadway serving the junior high school and ECFC and the one-way drop-off/pick-up roadway near the building's main entrance. Marked and signed pedestrian crosswalks should be considered at these two crossing locations.



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Option 1

1 Story Building
45,600 SF

Parking Analysis:

Existing: 396 Total Stalls

Req. for JR HS: 175
Req. for ECFC: 160

Delta Parking:
396-175-160= +61 Stalls

or, ONLY 396-61=335
Total Stalls Required for both
JR HS and ECFC

Actual Parking Count:
396-12= 384 Stalls

ECFC

Stillwater
Junior High
Site Studies

December 28, 2010



Proposed Stillwater ECFC Concept Site Plan

Proposed Early Childhood Family Center – Stillwater Junior High School Site – Traffic Impact Study
Larson Engineering Inc./Stillwater Area Public Schools District 834

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Figure 3

TRAFFIC FORECASTS

Based on information provided by the ECFC staff, trip generation estimates for the proposed ECFC were developed. The proposed ECFC will generate approximately 490 trips (with 245 inbound and 245 outbound) on an average weekday.

For comparison purposes, a trip generation estimate for the proposed ECFC was developed using the Institute of Transportation Engineers (ITE), 2008 "Trip Generation" Report. Since the ITE "Trip Generation" Report does not contain data for early childhood family centers, trip generation rates for Day Care/Pre-School facilities were used. The resultant ITE trip generation estimate for the proposed ECFC site is 448 trips on an average weekday. Based on this comparison, the ECFC client/student and faculty/staff based trip generation estimate of 490 daily trips was considered reasonable and was the basis for the ECFC traffic volume projections.

Based on information provided by the ECFC staff, it is estimated that three (3) trucks will serve the proposed ECFC on an average weekday. These trucks would include a daily USPS mail delivery truck and two of the following possible trucks: UPS/FedEx, solid waste disposal, food service, school supply and maintenance trucks. Many of these trucks may already be on the study area roadways on a daily basis and would not be new trucks in the neighborhood.

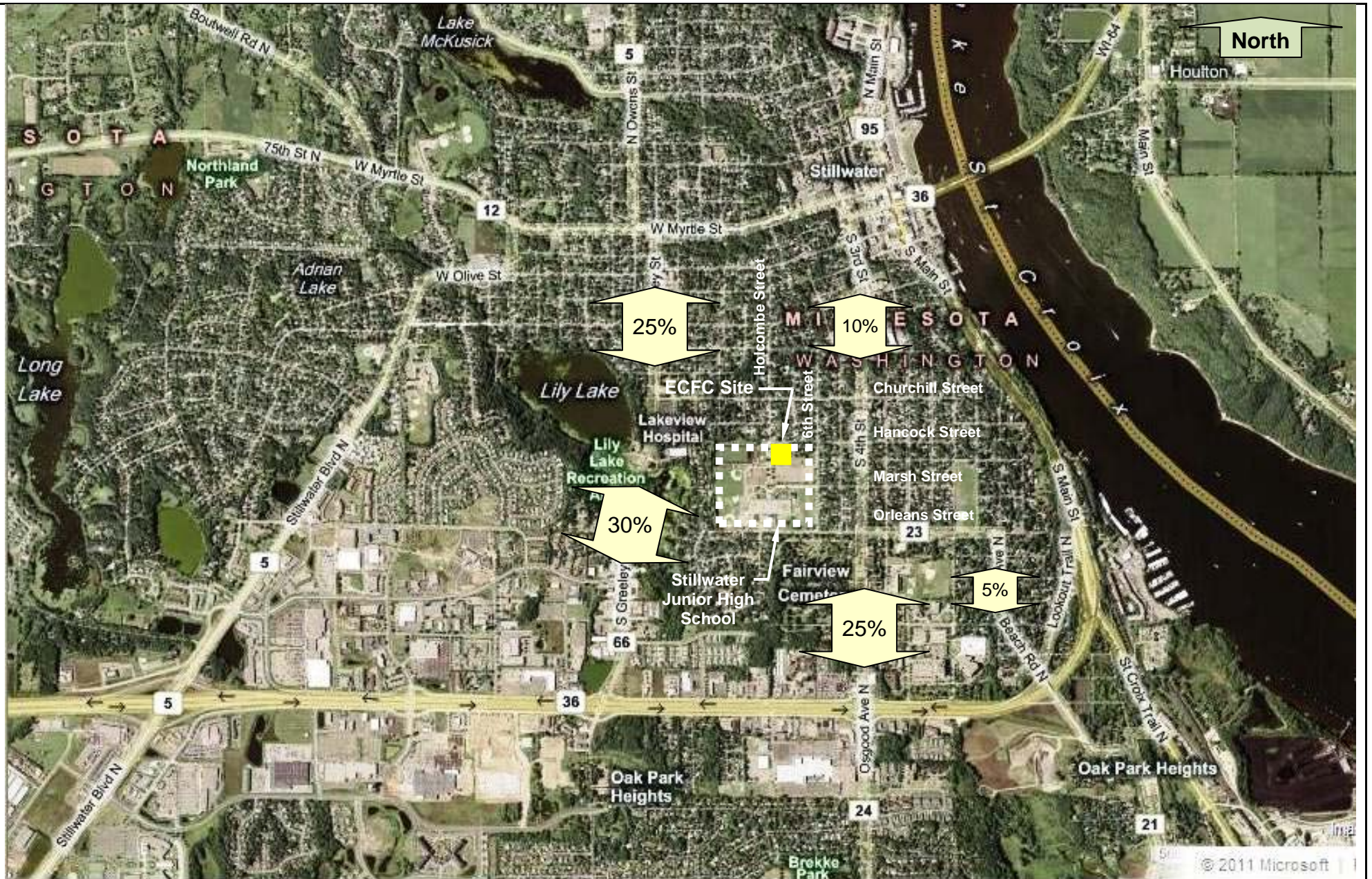
Based on ECFC staff information, special events will occasionally occur, but not frequently enough to include in the average weekday daily trip generation estimate. There are also existing trips generated by the existing site (which is now an athletic field). However, because this existing site traffic is seasonal and not a daily occurrence it was determined that a trip reduction to the ECFC design weekday trip generation estimate was not required.

The 490 ECFC generated daily trips were assigned to the existing study area roadways based on an assumed directional trip distribution (see Figure 4: Proposed Stillwater ECFC Site Generated Traffic Directional Trip Distribution). This ECFC site generated traffic directional trip distribution was based on information related to the geographic distribution of the proposed ECFC client/student and faculty/staff population provided by the ECFC staff. The resulting traffic projections are shown on Figure 5.

As shown in Figure 5, the proposed ECFC generated traffic would not result in a significant traffic volume increase on any of the selected study area roadways (no increases greater than 15 percent with most increases less than 10 percent) when ECFC generated traffic is added to the existing study area selected roadway daily traffic volumes. The following are selected examples of the estimated daily traffic volume increases on study area roadways:

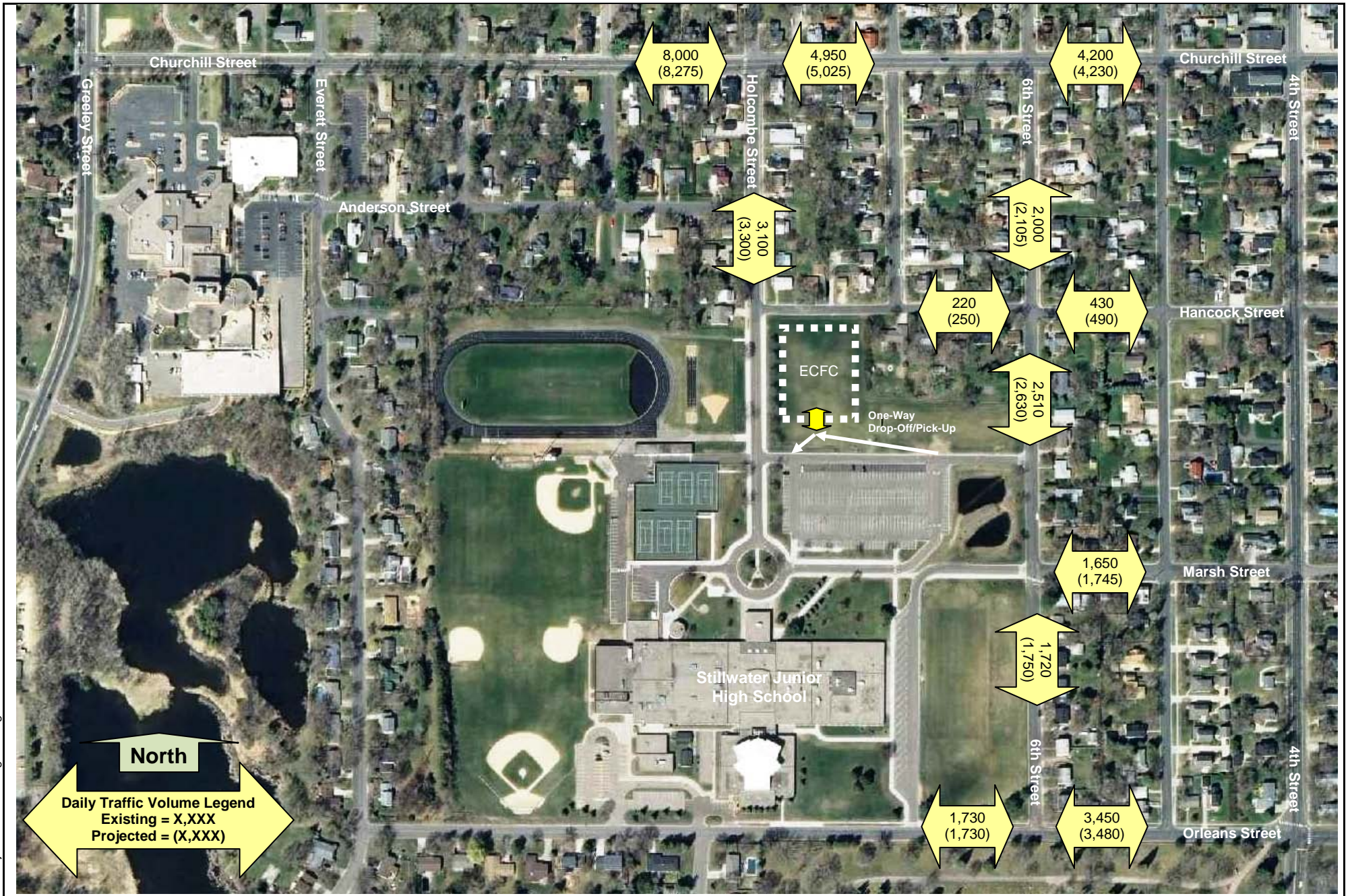
- Churchill Street west of Holcombe Street: + 275 vehicle trips per day (3.5 percent)
- Holcombe Street south of Churchill Street: + 200 vehicle trips per day (6.5 percent)
- 6th Street south of Churchill Street: + 105 vehicle trips per day (5.3 percent)
- Hancock Street west of 6th Street: + 30 vehicle trips per day (13.6 percent)
- Hancock Street east of 6th Street: + 60 vehicle trips per day (14.0 percent)

Based on these estimated daily traffic volume increases, and since the majority of these new trips will be scattered throughout an average weekday between the hours of 8:30 AM and 4:00 PM, it is concluded that the proposed ECFC would not represent a significant traffic impact on the study area neighborhood roadways.



Note: 5% of the Proposed ECFC site generated traffic directional trip distribution (not shown) is distributed to the surrounding neighborhood streets.

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CONCLUSIONS AND RECOMMENDATIONS

Based on the results of this Early Childhood Family Center (ECFC) traffic impact study, the following conclusions and recommendations are offered for consideration:

- The proposed ECFC concept site plan is well configured in terms of traffic circulation and provides good access to the supporting transportation system.
- The proposed drop-off/pick-up area at the main building entrance operates as a one-way westbound roadway on the south side of the proposed ECFC building. As passenger vehicles may approach the entrance to this one-way westbound drop-off/pick-up from both directions it is recommended that the passenger vehicle turning radius be checked for an eastbound left-turn from the main circulation roadway to the westbound drop-off/pick-up roadway. It is also recommended that on-site drop-off/pick-up area guide signing be considered to ensure clients/students are dropped-off/picked-up on the site and not in the adjacent neighborhoods.
- Parking for the proposed ECFC will take advantage of existing parking available on the junior high school site south of the proposed ECFC building. ECFC clients/students escorted by their parents or guardians who park at the ECFC will access the building as pedestrians by crossing the main east/west roadway serving the junior high school, the ECFC and the one-way drop-off/pick-up roadway near the building's main entrance. It is recommended that marked and signed pedestrian crosswalks be considered at these two crossing locations.
- The proposed ECFC site would generate approximately 490 trips on an average weekday. This estimate compares conservatively with an estimate based on the ITE "Trip Generation" Report.
- The ECFC and junior high school hourly traffic profiles indicate that there would be minimal overlap of peak hour traffic volumes. ECFC generated traffic will enter and exit the site more consistently throughout the day versus the higher morning and afternoon traffic peaks associated with the junior high school.
- The number of trucks serving the proposed ECFC is estimated to be three (3) on an average weekday, with many of these trucks already on the study area roadways on a daily basis.
- The proposed ECFC generated traffic would not result in a significant traffic volume increase on any of the selected study area roadways (no increases greater than 15 percent with most increases less than 10 percent). Therefore; the proposed ECFC would not represent a significant adverse traffic impact on the study area neighborhood roadways.