



May 2, 2012

Mr. Jay Camp  
Town of Matthews Planning Department  
232 Matthews Station Street  
Matthews, North Carolina 28105

Re: Petition No. 2012-583 - Withdrawal

Dear Jay,

Following recent helpful discussions with Mayor Taylor and Mayor Pro Tem Bailey, Covenant Day School (CDS) has decided it would be best to withdraw the Change in Condition Petition No. 2012-583 at this time. With new Head of School, Mark Davis, beginning his tenure at CDS on July 1, 2012, we have determined the best course of action for now is to withdraw the petition; confer with the Board of Trustees of CDS, Mr. Davis (once he begins employment), Christ Covenant Church leadership, and Town Officials; and file a revised petition at a later date. In the meantime, CDS will explore other options to meet current enrollment demands from prospective families while adhering to CDS's mission statement of assisting the Christian family by providing an education marked by a biblical worldview, academic excellence, and affordability, so that students are equipped to be salt and light for God's glory.

If you have any questions, please do not hesitate to contact me at 704-258-0043 or [jody.billiard@ccbcc.com](mailto:jody.billiard@ccbcc.com).

Sincerely,

A handwritten signature in black ink that reads "J. Billiard".

William J. "Jody" Billiard  
Chairman, Board of Trustees

cc: Dr. Marni Halvorson, Covenant Day School  
Dr. Mike Ross, Christ Covenant Church  
Mr. David Powlen, Little  
Mayor Jim Taylor  
Mayor Pro Tem Paul Bailey

2012

# Covenant Day School

## Transportation Technical Memorandum



## INTRODUCTION

Little of Charlotte, North Carolina retained STV / Ralph Whitehead Associates, Inc. (STV / RWA) to evaluate traffic operations around the existing Covenant Day School in Matthews, North Carolina. This study addresses the traffic operations of the surrounding road system based on Existing (2012), No-Build (2013, 2017) and Build (2013, 2017) conditions for the AM and PM peak hour.

The existing Covenant Day School accommodates Elementary, Middle and High School students. For the purposes of this study the Covenant Day School proposes to increase the High School enrollment by 20 students in 2013 and 80 students in 2017. A portion of the increase in High School enrollment corresponds to a decrease in enrollment at the Elementary School. A 20% reduction of the High School enrollment increase was applied to the Elementary School enrollment. **Table 1: Student Enrollment** illustrates the number of existing and proposed students in each school. The following traffic analysis documents the impacts associated with the increase in student enrollment on the adjacent street network.

**Table 1: Student Enrollment**

	2012	2013	2017
<b>Elementary School</b>	321	317	301
<b>Middle School</b>	216	216	216
<b>High School</b>	303	323	403

## TRAFFIC DATA

STV / RWA conducted traffic counts at the following four (4) intersections:

- NC 51 (Matthews Township Parkway) & Covenant Church Lane
- Fullwood Lane & Church Entrance 1
- Fullwood Lane & Church Entrance 2
- W John Street & Covenant Church Lane

Counts were conducted between March 20, 2012 and March 29, 2012 during the AM peak travel period (7:00 - 9:00 PM) and PM peak travel period (2:00 – 4:00PM). The AM and PM peak travel periods were set to coincide with the arrival and dismissal times for each school. A review of the traffic counts revealed that intersections had an AM peak hour of 7:30 – 8:30 AM and a PM peak hour of 2:45 – 3:45 PM.

## METHODOLOGY

A background growth rate of 2% per year was assumed for the study area. The assumption was based on historical traffic data collected by the Charlotte Department of Transportation and is consistent with the traffic study prepared for the same area, *Covenant Day Athletic Field Traffic Impact Study (STV, 2011)*.

The Trip Generation Report developed for the proposed student enrollment increase is shown in **Table 2: Trip Generation**. The proposed trip generation utilizes the following assumptions:

- 7% of new high school students will be student drivers
- 80% of new student drivers are single occupancy trips
- 20% of new student drivers have a sibling at school; therefore, no new trips generated
- 80% of new parent drivers are single occupancy trips
- 20% of new parent drivers have more than 1 child at school; therefore, no new trips generated (assume 2 children max.)
- The elementary school enrollment will decrease by 20% of the High School increase

The existing entering and exiting volumes for each of the intersections analyzed in this report were assumed to represent the existing trip generation of the Covenant Day School. Proposed trips were added to the existing entering and exiting volumes for each intersection studied in this report. The existing trip generation was compared to the North Carolina Department of Transportation (NCDOT) Municipal and School Transportation Assistance (MSTA) calculator. The MSTA calculated trips results were slightly lower than the existing entering and exiting volumes, and as a result, were discounted in order to provide a more conservative and representative analysis. The MSTA calculator was utilized to estimate proposed trip generation associated with the student enrollment increase and is presented in **Figure 1: Trip Generation Distribution**. The trip generation applied to each Covenant Day School entrance is presented in **Figure 3: 2013 Trip Generation** and **Figure 4: 2017 Trip Generation**.

**Table 2: Trip Generation**

Land Use	Year	Intensity	AM Peak Hour			PM Peak Hour		
			Total	In	Out	Total	In	Out
Private High School	2013	20 students	20	13	7	14	4	10
Private High School	2017	80 students	83	48	35	70	22	48
<b>TOTAL</b>		<b>100 students</b>	<b>103</b>	<b>61</b>	<b>42</b>	<b>84</b>	<b>26</b>	<b>58</b>

The traffic operations analysis was performed for the following scenarios:

- 2012 Existing Peak Hour
- 2013 Projected Peak Hour (No-Build)
- 2013 Projected Peak Hour with proposed enrollment increase (Build)
- 2017 Projected Peak Hour (No-Build)
- 2017 Projected Peak Hour with proposed enrollment increase (Build)

The No-Build scenarios include background traffic growth that utilizes the 2% area growth rate. The Build scenarios comprise background traffic growth and additional trips associated with the student enrollment increase. It should be noted that the 2017 No-Build scenario includes the student enrollment increase during 2013.

Synchro 7.0 was used to analyze the intersections in the study area for these scenarios. The Synchro results give a level of service (LOS) for the intersections. The LOS is an important measure of roadway congestion. The LOS is determined by calculating the delay for the intersection and converting it to a letter. The LOS ranges from A (no congestion) to F (severe congestion). The LOS criteria for signalized and unsignalized intersections are shown in **Table 3: Level of Service Criteria**.

**Table 3: Level of Service Criteria**

Signalized Intersections		Unsignalized Intersections	
LOS	Delay per Vehicle (seconds)	LOS	Delay per Vehicle (seconds)
A	≤10	A	≤10
B	>10 and ≤20	B	>10 and ≤20
C	>20 and ≤35	C	>20 and ≤35
D	>35 and ≤55	D	>35 and ≤55
E	>55 and ≤80	E	>55 and ≤80
F	>80	F	>80

## INTERSECTION CAPACITY ANALYSIS

A capacity analysis was conducted on the four intersections that access the Covenant Day School property. **Table 4: Intersection Level of Service & Delay** presents the results of the capacity analysis.

**Table 4: Intersection Level of Service & Delay  
AM (PM) Peak Hour**

	2012 Existing	2013 No-Build	2013 Build	2017 No-Build	2017 Build
<b>NC 51 (Matthews Township Parkway) &amp; Covenant Church Lane</b>					
<b>LOS</b>	C (C)	C (C)	C (C)	C (C)	C (C)
<b>Delay(sec.)</b>	17.1 (16.2)	17.5 (16.5)	17.5 (16.5)	19.0 (17.7)	19.2 (18.1)
<b>Fullwood Lane &amp; Church Entrance 1</b>					
<b>LOS</b>	B (D)	B (D)	B (D)	C (E)	C (E)
<b>Delay(sec.)</b>	14.1 (30.6)	14.3 (31.5)	14.3 (31.7)	15.1 (35.5)	15.4 (37.1)
<b>Fullwood Lane &amp; Church Entrance 2</b>					
<b>LOS</b>	E (E)	E (E)	E (E)	E (F)	F (F)
<b>Delay(sec.)</b>	38.5 (38.0)	40.3 (40.1)	41.0 (40.9)	49.6 (51.5)	53.2 (57.1)
<b>W John Street &amp; Covenant Church Lane</b>					
<b>LOS</b>	C (D)	C (D)	C (D)	C (D)	C (E)
<b>Delay(sec.)</b>	16.0 (25.7)	16.3 (26.7)	16.6 (27.6)	18.0 (32.9)	18.8 (37.6)

NOTE: DELAY FOR UNSIGNALIZED INTERSECTIONS IS BASED ON THE WORST APPROACH

### NC 51 (Matthews Township Parkway) & Covenant Church Lane

This unsignalized intersection currently operates as a right-in/right-out intersection. The existing level of service is LOS C during the AM and PM peak periods. The level of service would remain LOS C during the 2013 and 2017 No-Build and Build scenarios. Impacts associated with the increase in student enrollment would be minimal.

### Fullwood Lane & Church Entrance 1

This entrance is located across from Marion Drive and is the northernmost entrance on Fullwood Lane. The intersection is unsignalized with stop control on the Church Entrance and Marion Drive and currently operates at LOS B during the AM peak period and LOS D during the PM peak period. The level of service would remain the same through the 2013 Build scenario. During the 2017 No-Build and Build scenarios the level of service would degrade to LOS C during the AM peak period and LOS E during the PM peak period. The cause for the poor level of service during the AM peak periods is due to 1 left turning vehicle on Marion Drive that struggles to find an acceptable gap in traffic to complete the left turn maneuver. If this vehicle were removed the LOS for the AM peak period for the 2013 and 2017 scenarios would be LOS B and LOS C, respectively. It should be noted that the vehicle on Marion Drive is not associated with the Covenant Day School or the increase in student enrollment.

### Fullwood Lane & Church Entrance 2

This entrance forms a T-intersection with Fullwood Lane and is the southernmost entrance on Fullwood Lane. The unsignalized intersection currently operates at LOS E during the AM and PM peak hours. The level of service would remain LOS E during both peak hours for the 2013 No-Build and Build scenarios. The intersection would remain LOS E during the AM peak hour and would degrade to LOS F during the PM peak hour during the 2017 No-Build scenario due to background growth. During the 2017 Build scenario, the intersection would operate at LOS F during both peak hours. Despite the poor level of service during the 2017 Build scenario, the delay is focused on the Covenant Day School entrance and does not affect the adjacent street traffic.

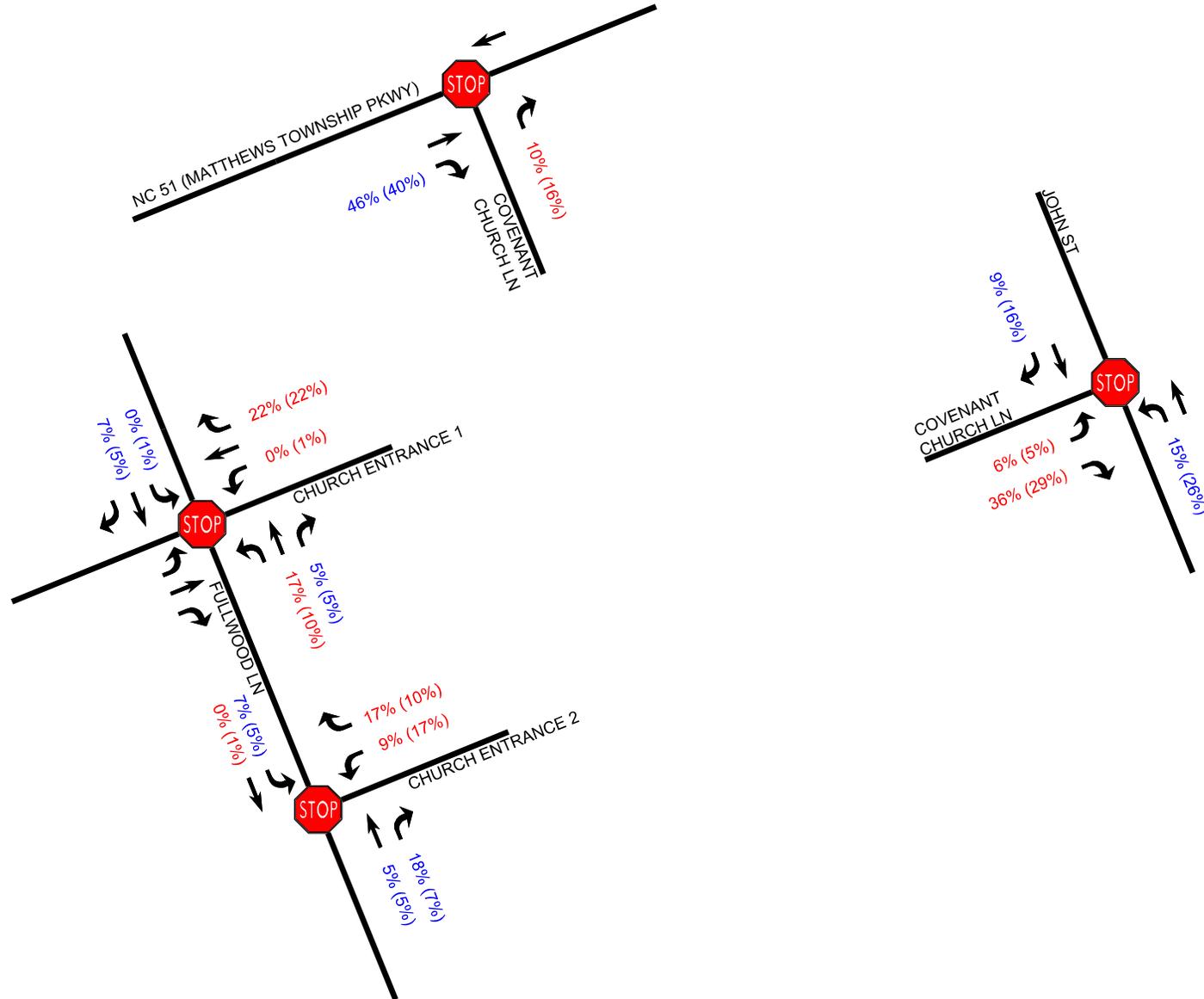
### W John Street & Covenant Church Lane

Covenant Church Lane forms a T-intersection with W John Street. This unsignalized T-intersection operates at LOS C during the AM peak hour and LOS D during the PM peak hour. The level of service would remain the same during the 2013 No-Build, 2013 Build and 2017 No-Build scenarios. During the 2017 Build scenario, the intersection would remain LOS C during the AM peak hour, but would degrade to LOS E during the PM peak hour. Despite the decrease in level of service during the PM peak hour, the delay only increases by 4.7 seconds and is focused on Covenant Church Lane. Due to the delay being focused on Covenant Church Lane, the adjacent street traffic is not impacted by the increase in traffic associated with the Build scenarios.

## **CONCLUSION**

Background traffic growth does not affect the level of service at any intersection in 2013 and only affects the level of service at two intersections in 2017, Fullwood Lane & Church Entrance 2 and W John Street & Covenant Church Lane. The additional trips associated with the increases in student enrollment at the Covenant Day School during 2013 and 2017 would increase delay at the four intersections; however, the increases in delay would be focused on the entrances to the Covenant Day School. The student enrollment increase would not affect the level of service at any of the four entrances during the 2013 Build scenario. During the 2017 Build scenario, the student enrollment would degrade the AM peak hour level of service at the Fullwood Lane & Church Entrance 2 intersection and PM peak hour level of service at the W John Street & Covenant Church Lane intersection.

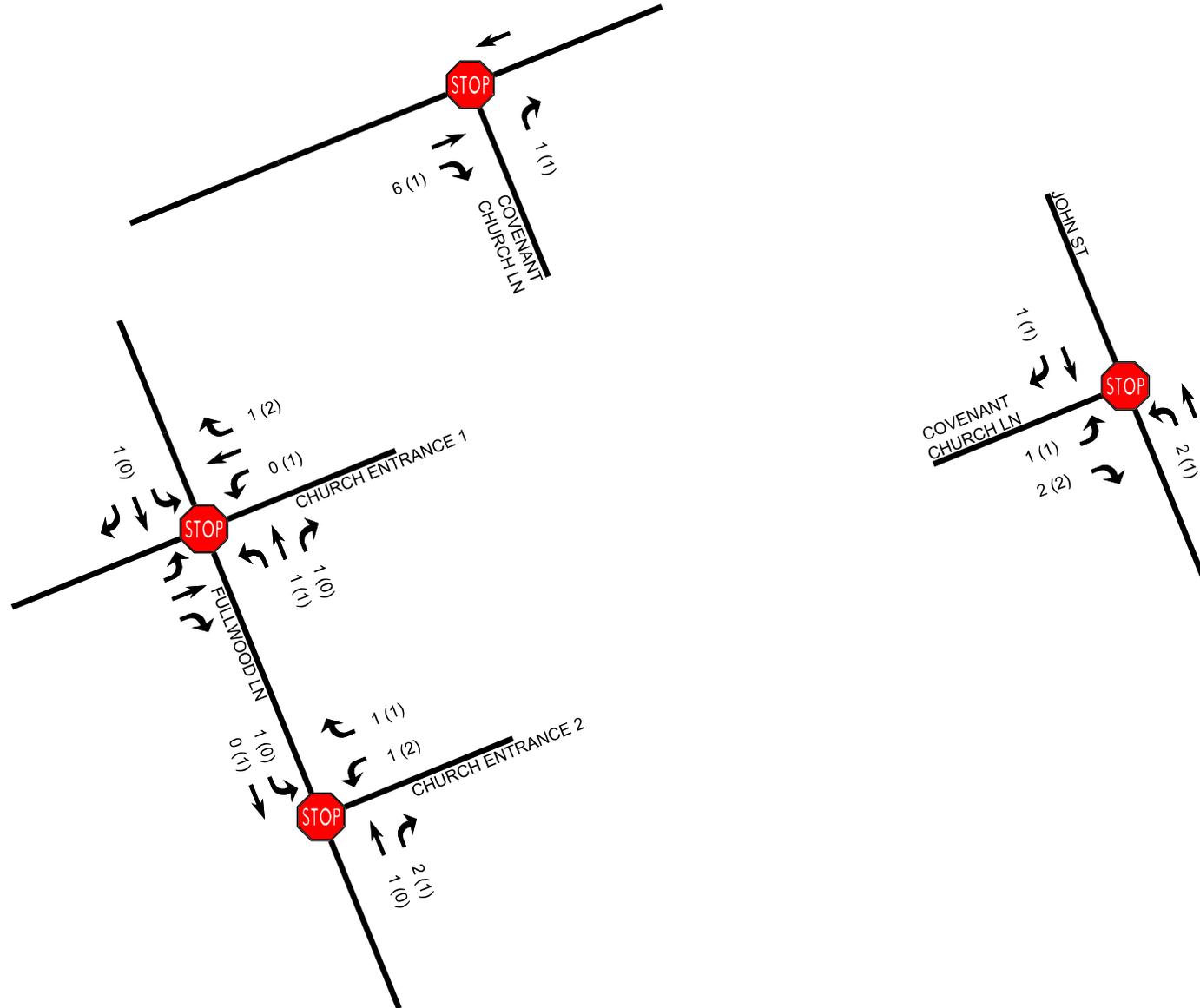
The internal traffic circulation and four entrances to the Covenant Day School property effectively distribute traffic to the surrounding roadways. Impacts to traffic operations associated with the student enrollment increases in 2013 and 2017 would be limited to the entrances to the Covenant Day School and would not affect the adjacent street network. As a result, mitigation would not be required during the 2013 or 2017 Build scenarios.



# TRIP DISTRIBUTION

ENTERING TRIPS AM (PM)  
EXITING TRIPS AM (PM)

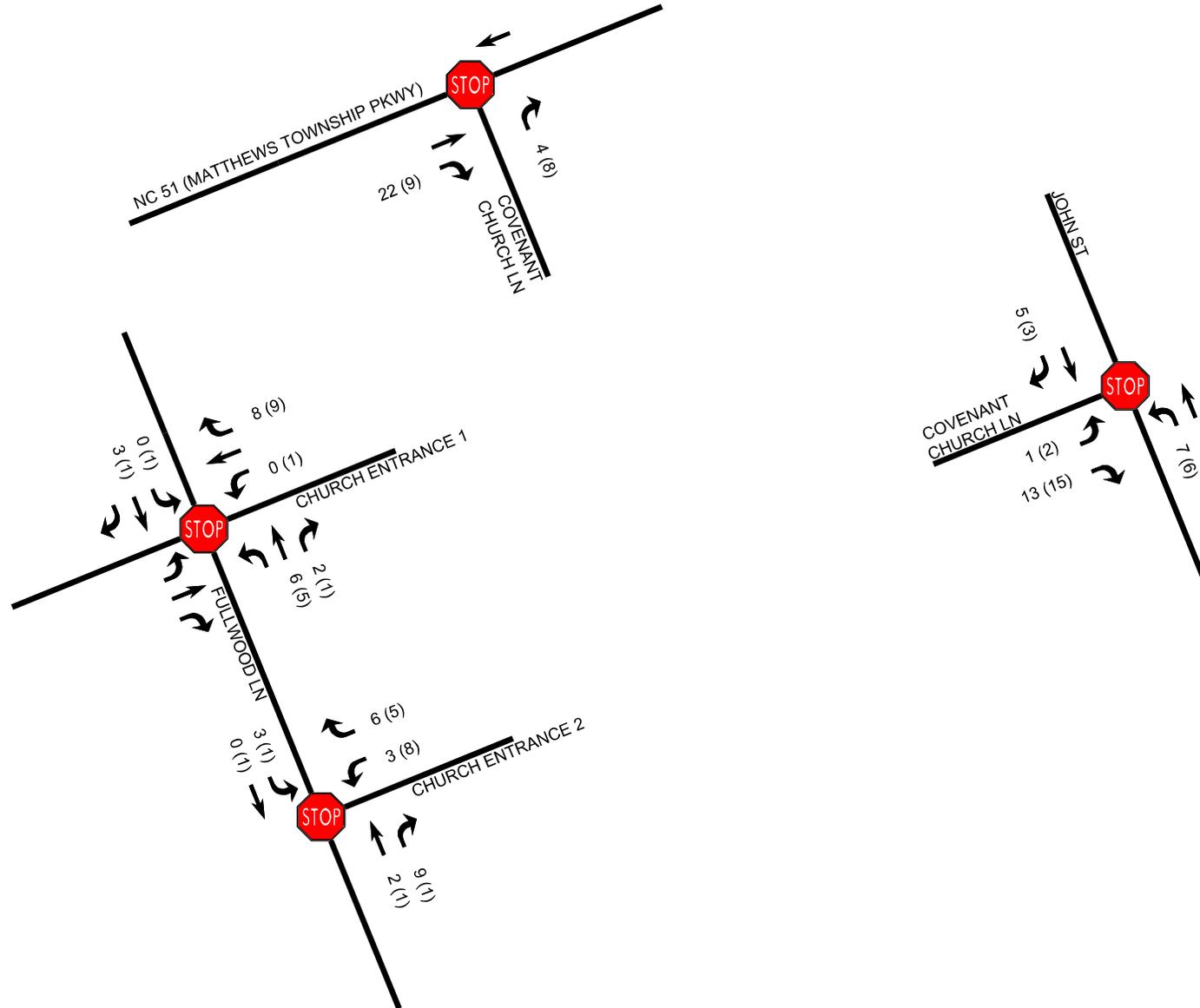
FIGURE 1



AM (PM)

# 2013 TRIP GENERATION

FIGURE 2



AM (PM)

# 2017 TRIP GENERATION

FIGURE 3

From: **David Powlen** <[DPowlen@littleonline.com](mailto:DPowlen@littleonline.com)>  
Date: Fri, Mar 23, 2012 at 11:39 AM  
Subject: RE: reasons for seeking change in condition

I would like to provide some additional information and hopefully clarification to some of the issues raised in the e-mail below. We are currently conducting a traffic analysis of Covenant Church Lane where it ties to West John Street and Highway 51. We are also looking at both exits from the Church property onto Fullwood Lane. We had previously studied the Highway 51 – Monroe Road intersection and Highway 51 - Fullwood Lane intersection. The results of that analysis will be available prior to the April 9<sup>th</sup> Board Meeting.

I also spoke with Chief Green from the Matthews Fire and EMS Department and Chief Hunter with the Matthews Police Department. Both Chief Green and Chief Hunter said that the increase in the enrollment at Covenant Day High School would have no adverse impacts on their service. In fact both indicated that the Church and the School are not currently high incident facilities and that they have responded to minimal calls at each facility. Chief Green asked me to contact the Mecklenburg County Fire Marshal's Office to make sure we were not exceeding the capacity of the existing building since they are the department that actually performs the fire inspections. I spoke to Mike Petleski with the Mecklenburg County Fire Marshal's Office and he said they had no issues currently with the school and would have no issues as long as the capacity remained below what was allowed by the building code. So I had the building architect do a code summary of the building and according to the North Carolina Building, the current building can accommodate up to 591 people just in the classrooms. This does not include the gym, media center or Administration areas.

The original petition was also sent to Matthews Public Works and Matthews Park and Recreation and neither of the departments responded with any comments.

We have also researched the athletic teams at Covenant Day School. Currently there are 34 athletic teams at Covenant Day School, including both the Middle School and High School. Ten of those teams use Warner Park:

- Middle School, Junior Varsity, and Varsity Boys Soccer
- Middle School, Junior Varsity, and Varsity Girls Soccer
- Middle School and Varsity Baseball
- Middle School and Varsity Softball

There are 15-17 athletes per team. During the academic school year 2011-2012, there are a total of 45 days where home games are played at Warner Park ( 2 in August, 11 in September, 4 in October, 17 in March, 10 in April and 1 in May). Many of these days have multiple sports being played on the same day. Of those 45 game days, only 26 are at times that will require the field lights to be turned on. Of course there are practices for these same teams at Warner Park, but those practices start in early August and end in early October for the Fall sports and begin in mid-February and end in early May for the Spring

season. The lights are not used for practices, only games. The Warner Park fields are also used by SOAR teams, but SOAR does not use the lights and this petition has no impact on them.

As stated during the Public Hearing, this request for the increase in the number of students that can be housed in the existing high school building will have no bearing on the number of teams playing at Warner Park or the number of athletes on those teams.

I hope this e-mail provides the additional information that you will find helpful in making your decision concerning this petition. As always, if you have any additional questions, please do not hesitate to contact me.

**David C. Powlen, RLA CLARB Certified LEED BD+C**  
Little  
D: [704.561.3472](tel:704.561.3472) | F: [704.561.8700](tel:704.561.8700)  
[dpowlen@littleonline.com](mailto:dpowlen@littleonline.com)

----- Forwarded message -----

From: **Marni Halvorson** <[mhalvorson@covenantday.org](mailto:mhalvorson@covenantday.org)>

Date: Fri, Mar 16, 2012 at 11:40 AM

Subject: reasons for seeking change in condition

To: "[kingrish@matthewsnc.com](mailto:kingrish@matthewsnc.com)" <[kingrish@matthewsnc.com](mailto:kingrish@matthewsnc.com)>, Jay Camp

<[jcamp@matthewsnc.com](mailto:jcamp@matthewsnc.com)>, "[mayortaylor@matthewsnc.com](mailto:mayortaylor@matthewsnc.com)"

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Cc: Jody Billiard <[jody.billiard@ccbcc.com](mailto:jody.billiard@ccbcc.com)>, Mike Ross <[mross@christcovenant.org](mailto:mross@christcovenant.org)>, David

Powlen <[DPowlen@littleonline.com](mailto:DPowlen@littleonline.com)>

Greetings, Mayor, Town Council members, and town planners,

Monday evening a petition was presented requesting a "change of condition" for the high school building at Covenant Day School. I realized during the discussion that it would be helpful for you to have the history behind the current number. A decade ago, when the original request was made, it seemed that a high school enrollment of 300 would be sufficient. We had about 75 students per grade level in elementary and middle school, and were just beginning to add high school grades with about 20 students per grade. We thought that filling out the four years of high school would total 300 students. What we failed to do at the time was instead look at square footage of the building and make our request accordingly.

Covenant Day School was founded in 1989 and currently has a total of 840 students in transitional kindergarten through senior year of high school. In addition to the high school building, we meet in four other permanent buildings and nine modular buildings on the campus.

This year our high school enrollment reached 303 students. Knowing we were permitted 300 in the building, we had to make arrangements for one of the classes to meet in one of the other buildings. We have done that so that we do not exceed the approved number. While we anticipate about the same total number of high school students for next year, we realized that the building itself had greater capacity. Our desire to seek the change of condition was to update the approved number to the number the building can actually accommodate. I had the high school principal check each of the classrooms, and the total number was, as Mr. Powlen answered, 440 students. Our school board, however, has determined that the maximum number of students in the high school should not grow to more than 400. Our request, thus, is for a number (420) smaller than the capacity that can be reasonably accommodated.

Although the petition does not speak to Warner Park, a question was raised about that property and how it might be impacted by an increase in the rezoning for the high school building. We do not hold any physical education classes at Warner Park. We currently field the sports teams we intend to field, and the number of students on each team would not be expanded.

If our high school enrollment exceeds 300, even slightly, we would prefer to have all our high school students meet in the high school building. If this is not approved, we will again have to arrange for those classes to be in other buildings on the campus.

We are committed to doing our very best to prepare students for lives as productive citizens

now and into the future. Service learning is an aspect of this. By way of example, this week our fourth grade students are out in the community serving in various locations as a part of their "goodness guerillas" unit. Next week all of our middle school students will spend another full day of service in the community, including Matthews locations of Christian Adoption Services, Birthday Blessings, Habitat for Humanity-Matthews, Carrington Place, the Town of Matthews Recreation Services, Christ Our Shepherd, and the Matthews HELP Center. Our lower school children twice annually host a major food drive to benefit the pantry at the Matthews HELP Center. Annually we have high school students who travel to Haiti to work in two orphanages, build a computer lab, and plan an aquaponics system. Our classes have "adopted" emergency responders from Matthews and regularly pray for them as well as send them encouragement.

Covenant Day School is pleased to be a member of the community of Matthews, and we trust the town is pleased with the commendations that the school receives, reflecting well on this fine community. The school is accredited by SACS (Southern Association of Colleges and Schools), and has a reputation of solidly preparing the students who attend. Though this year's graduating class is only our seventh, we have already had two Morehead-Cain scholars. We have numerous national Merit Scholars and over 95% of our graduates go on to college. Students can take 17 Advanced Placement courses. CDS students have won local art competitions, and have produced concerts, dramas, and musical productions. We have won the statewide Wachovia Cup in athletics three times, as well as state titles in several sports. Of the more than 500 families with students enrolled, almost 200 live in Matthews (in addition to the nearly 300 Christ Covenant Church families who reside in Matthews). Several of these families have moved into Matthews specifically for the school; it is an institution that attracts residents to the community. In addition to these taxpayers, many of the parents find it convenient to shop locally after they have dropped off their children, thereby stimulating the local economy.

We appreciate the opportunity to present our petition, and look forward to a long and healthy relationship with the Town of Matthews.

Very sincerely,

Marni  
Dr. Maren Halvorson  
Head of School

Covenant Day School  
800 Fullwood Lane  
Matthews, NC 28105  
[704-847-2385](tel:704-847-2385)  
[www.covenantday.org](http://www.covenantday.org)<<http://www.covenantday.org>>

Hello neighbors,

At the beginning of this month I sent you an update on construction activity at Warner Park. One of the items mentioned was that most of the construction had been completed with the exception of the access road with speed bumps. We think the road construction will get underway the last week of March, weather permitting. With completion of that, all construction will be done. There are just a couple remaining punch list items that need attention, which we would expect to have completed very quickly.

Although this next item does not impact Warner Park, the school has filed a change of condition petition for the high school building located on Covenant Church Lane. The building is zoned for 300 students and we are requesting to update that number to 420 students. We anticipate next year's enrollment being essentially the same as this year's: 303. We found our original zoning request on the building was based on theoretical enrollment numbers rather than building size. We have looked at the number of rooms and find that we can accommodate a larger number of students. Although we do not anticipate an influx of students, we wanted to have the building zoned for the number it could accommodate. Because of the high school building location being on the opposite side of Highway 51, we do not use Warner Park for any physical education classes. We do not anticipate adding more sports teams nor more students per sports team than we currently field. We do not think, therefore, that the change of condition request for the high school building on Covenant Church Lane will appreciably impact Warner Park.

This year, knowing that we were permitted 300 students in the building but an enrollment of 303, we had to make arrangements for one of the classes to meet in one of the other buildings. We have done that so that we do not exceed the approved number. We would prefer to have all our high school students meet in the high school building. If the update request is not approved, we will again have to arrange for some high school students to have classes in other buildings on the campus.

I hope you have enjoyed the lovely spring weather we have seen this week.

Very sincerely,

*Marni*

Dr. Maren Halvorson  
Head of School

**Covenant Day School**  
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Matthews, NC 28105  
[704-847-2385](tel:704-847-2385)  
[www.covenantday.org](http://www.covenantday.org)

LAND DEVELOPMENT SERVICES

February 8, 2012

Mr. Jay Camp, Planner  
Town of Matthews  
232 Matthews Station Street  
Matthews, North Carolina 28105

Re: Covenant Day High School – Change in Condition Application  
Waiver of Traffic Impact Analysis

Dear Jay:

Though we are requesting to have the maximum enrollment at Covenant Day High School increased to 420, we are not currently planning to increase the size of the building. The site currently meets the all parking requirements with the shared use of the adjacent church parking lot for student parking and there is enough room on the site to stack all vehicles for parent drop-off and pick-up. Therefore, we request a waiver of the Traffic Study and the TIA requirement.

If you have any questions, please do not hesitate to contact me at (704) 561-3472.

Sincerely,

Little Diversified Architectural Consulting



David C. Powlen, RLA LEED BD+C  
Studio Principal

cc: Dr. Marni Halvorson, Covenant Day School  
Rick Ely, Covenant Day School

5815 Westpark Drive  
Charlotte NC 28217

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