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Highland Park High School Campus Traffic and Parking Study

Prepared for:

Township
High School
District 113



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1- INTRODUCTION

Eriksson Engineering Associates (EEA) was retained by Township High School District 13 (District 113) to evaluate the existing and future transportation system at its Highland Park High School campus in Highland Park, Illinois. The school is a public high school serving the Cities of Highland Park and Highwood and the Town of Fort Sheridan. During the 2013-2014 school year, there were 2,127 students on campus. For the 2014-2015 school year, attendance dropped 2.4% to 2,076 students.

Transportation at the school is provided by multi-modal system with a combination of roadways, intersections, and parking lots for vehicular traffic along with school buses, public transit, pedestrian walkways, and bike paths.

District 113 developed a Long Range Facility Master Plan for Deerfield and Highland Park High Schools with the goal "to create facilities that foster educational excellence while respecting the District's taxpayers." By 2012, District 113 developed a five year Capital Development Plan for Highland Park and Deerfield High Schools. The plan called for building improvements to security, HVAC, water, class rooms, fire protection, windows, and other infrastructure improvements. Each school will expand their physical education facilities with an additional gymnasium and a pool. The improvement program adds additional program and classroom space for existing students and staff.

The purpose of this study was to observe and identify the transportation system serving the campus and to evaluate the need for improvements. This report summarizes the school's transportation network and operating conditions to assist the design team in addressing existing or potential problems.

Public Process

The development of this report included significant input from the public on both the existing transportation problems and future concerns. Meetings, focus groups, and public hearings were held to accept input from many stake holders. Additional information was provided by letters, e-mails, and phone conversations. Many of the stake holders in the process are identified below:

- Students
- Parents
- School Staff
- School Visitors
- Neighbors
- School Districts 112 and 113
- Highland Park Public Officials
- Highland Park Staff
(Police, Public Works, and Planning)
- The Community
- PACE and Metra

The results of this report are based on the input of the stakeholders and their comments.

Study Parameters

The proposed high school plan was presented to the City of Highland Park for their review. Concurrence by the City staff, the Plan Commission, and the City Council was received in the spring of 2014. The majority of the plan was approved except the location of the replacement parking. Further study was requested on traffic safety and flow. District 113 agreed to work with the City and the Community of Highland Park on further improving traffic safety.

The parameters of the study were defined as follows:

Boundaries of Study Area: Bloom Street to the north, Sheridan Road to the east, Elm Place to the south, and Green Bay Road to the west. (Linden Avenue was later added at the request of a resident)

The Traffic Safety Study must include, without limitation, review and recommendations concerning:

- (i) the installation of painting, signage, and other improvements to existing and potential new crosswalks located within the rights-of-way abutting the Property;
- (ii) the installation of new sidewalks within the rights-of-way abutting the Property;
- (iii) the imposition of one-way vehicular traffic restrictions on the Vine Avenue right-of-way;
- (iv) the imposition of vehicular speed limit restrictions on the rights-of-way abutting the Property;
- (v) the imposition of turning restrictions for vehicles entering or exiting the various parking lots on the Property; and
- (vi) the development of a comprehensive vehicular parking plan for the Property (including internal circulation).
- (vii) The study shall include a traffic and pedestrian management plan that addresses congestion and staging during peak hours.

Methodology

Eriksson Engineering staff visited the school campus during the morning and afternoon peak periods to gather relevant information regarding the existing conditions and the surrounding roadway system. Manual counts were conducted at the entrances to the campus and nearby intersections to identify the current volume of pedestrians, bikes, buses, and vehicular traffic during the school and commuter peak-hours. Capacity analyses were conducted to quantify the existing operating conditions.

EEA worked with District 113 and the Perkins+Will (the architect) design team to review a number of proposed options in developing the preferred plan. Particular focus was given to addressing current or anticipated deficiencies resulting from the changes. Based upon the above work tasks, EEA prepared this report documenting our field observations and review of the preferred plan.

The results of this study have been presented to the community, refined, and developed into an overall traffic and parking management plan.

2 - EXISTING TRANSPORTATION NETWORK

The existing transportation infrastructure serving the campus is provided by a combination of roadways, pedestrian walkways, bike paths, public transportation routes, and parking lots.

Site Location and Area Land-Use

Highland Park High School is located at 433 Vine Avenue between St Johns Avenue and the Robert McClory Bike Path. The main campus and school building is located north of Vine Avenue. Athletic fields and a visitor parking lot are located south of Vine Avenue. Land-uses around the campus are primarily single-family residential dwelling units to the north and east. Multi-family residents are located to the south. The Union Pacific North rail line (raised) and the bike trail are located along the west property line. The campus is located just north of Downtown Highland Park. **Figure 1** shows the school location and area roadways immediately around the campus.

Roadway Characteristics

The following roadways are under the jurisdiction of the City of Highland Park except for Sheridan Road:

Green Bay Road is a regional arterial roadway running through the North Shore suburbs along the Union Pacific Railroad North Line railroad tracks. At Vine Avenue and 1st Street, Green Bay Road is signalized with crosswalks and pedestrian signals. The traffic signals for Green Bay Road, Vine Avenue, and 1st Street operate as one signal. Southbound Green Bay Road has two approach lanes with a shared thru/left-turn lane and shared thru/right-turn lane. Northbound Green Bay Road has one thru lane at 1st Street and at Vine Avenue. The posted speed limit is 30 miles per hour.

St. Johns Avenue is a north-south residential collector road running south from Highwood past the campus, thru the Downtown to Ravinia Park. In front of the school, it has one travel lane in each direction. At Vine Avenue, St. Johns Avenue has an all-way stop controlled intersection. The posted speed limit is 25 miles per hour. In the Fall of 2014, a school speed zone was established on St John' Avenue north of Vine Avenue.

Vine Avenue is an east-west road running between Lake Michigan and the Exmoor Country Club. It is a residential collector street between St. Johns Avenue and Sheridan Road. It has one travel lane in each direction. Along the north side of the road, in front of the school building, a short-term parking/loading zone is provided. U-turns in front of the school are prohibited. The posted speed limit is 25 miles per hour.

1st Street is a commercial street leading into Downtown Highland Park. It is signalized at its intersection with Green Bay Road and Vine Avenue. Parking is permitted on both sides of the street. The posted speed limit is 30 miles per hour.

Woodpath Lane is a cul-de-sac residential street with nine homes under stop sign control opposite of the school bus drive on St. Johns Avenue. The speed limit is not posted.

Bloom Street is an east-west two-lane street that extends from Oak Street to Green Bay Road. It has an overpass across the Union Pacific North Line railroad tracks.



Highland Park High School Location

Figure 1

Sheridan Road is a north-south two lane arterial roadway with a 30 mile per hour (mph) speed limit and a School Speed Zone (20 mph). It is under the jurisdiction of the Illinois Department of Transportation but maintained by the City of Highland Park. South of Elm Place, the speed limit drops to 25 mph as it enters the Downtown district. No on-street parking is permitted north of Elm Place in front of the schools. South of Elm Place, there are marked on-street spaces.

Elm Place is an east-west two lane road. It is one-way westbound between Linden Avenue and Sheridan Road. It has a combination of angled and parallel street parking on both sides.

Maple Avenue is an east-west two-lane residential road extending east from St. Johns Avenue crossing Sheridan Road toward the lake.

Public Transportation

Public transportation at Highland Park High School is provided by a PACE bus route and a nearby Metra train station. PACE Route 472 runs along St. Johns Drive between Downtown Highland Park and the Metra Station past the school to Highwood and Ft. Sheridan. It has scheduled stops at the school on the northwest and southeast corners of Vine Avenue indicated by signs. Students were observed using the PACE buses but the number of students was very low.

The bus stops consist of a sign on a post in the parkway. Students exit/enter the bus by walking over the grass parkway. Consideration should be given to construct a hard surface walkway and waiting area to better serve the students especially in the winter with snow on the ground.

The Downtown Highland Park Metra train station on the Union Pacific North line is a 15 minute walk south of the school. Metra users have the option of walking or using the PACE bus to travel to the campus.

School Bus Transportation

Students can use the PACE bus route or District 113 school buses to travel to and from the campus. PACE Route 472 follows St. Johns Avenue with stops on the northwest (southbound) and southeast (northbound) corners of the Vine Avenue intersection.

During the morning arrival period, five school buses arrive at 7:00 AM for the “early bird” routes and nine buses arrive at 7:50 AM for the regular start of school. In the afternoon, seven buses transport the students after dismissal at 3:15 PM. Additionally, two activity buses leave at 5:15 PM. Busses arrive via St. Johns or Vine Avenues to the bus only loading area opposite Woodpath Lane (see **Figure 2**).

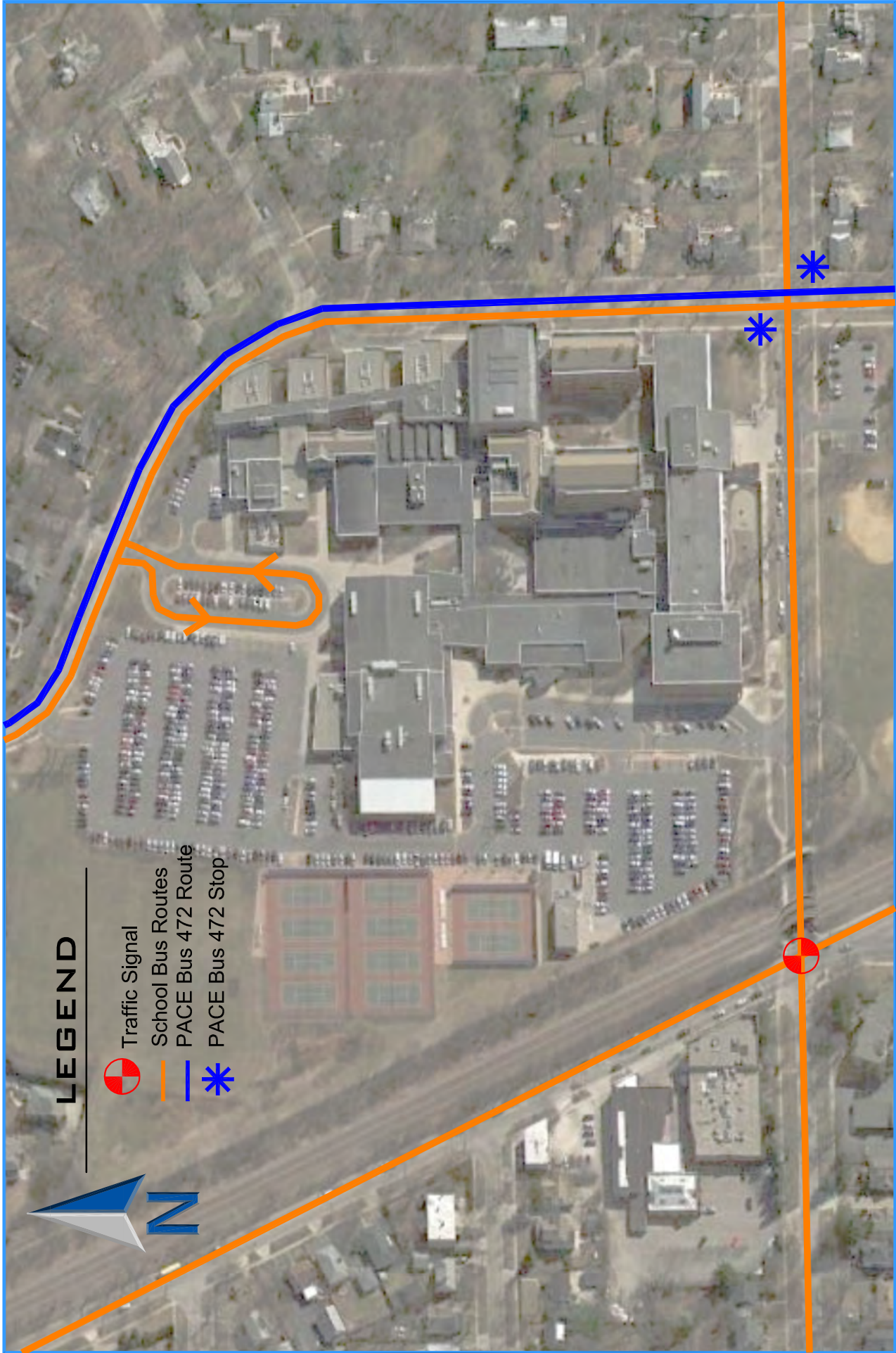
The loading area also has staff parking (51 spaces) so there an overlap in bus and staff traffic but it did not create any conflicts. The loading zone is approximately 460 feet in length which can accommodate up to 11 full size buses. The existing loading area and geometrics work well.

Pedestrian and Bike Routes

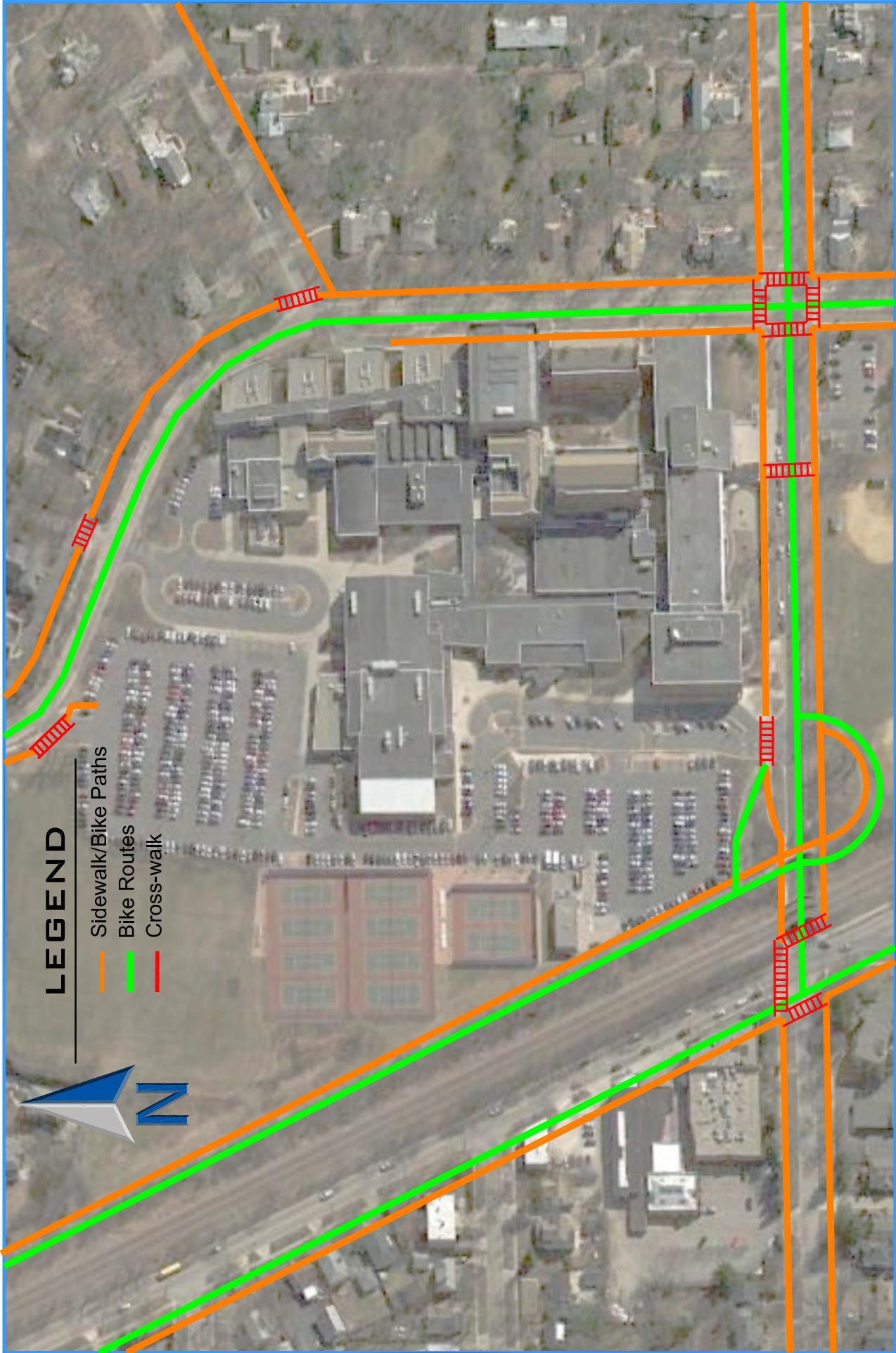
Pedestrian access is provided by sidewalks along the various streets around the campus and cross-walks at the major intersections. No sidewalk exists on the west side of St. Johns Avenue between Maple Avenue and the North student Lot access.

Green Bay Road, Vine Avenue, and St. Johns Avenue are considered on-street bike routes near the Highland Park High School campus. The Robert McClory Bike Path is located along the west side of the campus.

Figure 3 illustrates the existing pedestrian walks, bike routes, and crosswalk locations.



School And PACE Bus Routes
Figure 2



Existing Pedestrian Paths, Bike Paths & Crosswalks

Figure 3

Student Loading

Three loading areas are designated on-campus for student drop-off or pick-up and three informal loading areas are also being used. They are:

- North Student Lot (marked)
- West Staff Lot (marked)
- North side of Vine Avenue (marked)
- Vine Visitor Lot (informal)
- At the Vine Avenue/St. Johns intersection (informal)
- Vine Avenue East of St. Johns Avenue (informal)

One location is on the north side of the building, in the student parking lot, east of the new gymnasium and north of the main building. Counts showed approximately 140 vehicles in the morning and 75 in the early afternoon using the loading zone. Parents enter the student parking lot, travel counter clockwise within the lot, drop-off/pick-up their student and continue counter clockwise to the student exit. Morning and afternoon observations showed the loading area working well.

A second area is designated along the west side of the building, south of the athletic entrance with an entrance from Vine Avenue. This loading area is a mixture of curb loading (400 feet or 16 vehicles) and 17 spaces of diagonal parking spaces signed for a loading zone only. A truck dock is also located in this area. When a semi-truck is using the dock, it blocks the northbound direction but deliveries are scheduled to prevent conflicts.

Observations during school hours indicate that this loading zone is used by 100 to 125 vehicles, has sufficient curb area, and works well. However, when traffic attempts to exit back onto Vine Avenue, it backs up and interferes with the loading activities. This will be discussed in more detail later in the report.

A third drop-off area is located on the north side of Vine Avenue (westbound) in front of the school with 18 marked parking spaces that can be used by visitors outside of the peak arrival and dismissal periods. U-turns are prohibited from the westbound direction to eastbound Vine Avenue by signage. Only a couple of vehicles were observed making an illegal u-turn. Cars were observed parking across the marked crosswalk leading to the visitor lot.

There are three unofficial loading zones near the school in the visitor lot, east of Vine Avenue, and on the approaches to the Vine and St. Johns intersection. Parents that do not want to travel westbound on Vine Avenue and go thru the Green Bay Road traffic signal, will pull into the visitor lot and drop-off their student in the lot and then exit back on eastbound Vine Street. Because the existing parking lot configuration is a single bay of parking, this activity (40-60 vehicles) requires the vehicles to back-up in order to turn around creating an unsafe condition.

Another unofficial loading area used by parents to drop-off/pick-up their students while stopped at one of the Vine/St. Johns intersection stop signs and on Vine Avenue to the east. This activity needs to be discouraged since it creates delays and pedestrian/vehicular conflicts. **Figure 4** shows the student loading flow paths.

Student loading in front of existing neighbor's houses and driveways is a major complaint of the neighbors and contributes to congestion around the campus.



Student Drop-Off & Pick-Up Locations

Figure 4

Parking

Prior to the construction program, on-campus parking was provided in two staff lots, a student lot, and two visitor lots. Additional on-street parking for visitors was provided on the north side of Vine Avenue along the building’s main entrance (See **Figure 5**). Overall, there are 613 spaces provided on the campus and 18 additional spaces along Vine Avenue. **Table 1** summarizes the number of spaces by area and usage.

**Table 1
Highland Park High School Parking Supply and Usage
Prior to 2014 Construction**

Lot	Accessible	Student	Staff	Visitor	Total	Vehicles Parked (8/27/2013)
Student	7	281			288	272
Staff/Bus	2		49		51	49
Staff	7		223 ⁽¹⁾		230	216
Subtotal	16	281	272	0	569	537 (94%)
Visitor (Athletic)				17	17	3
Visitor (Vine Lot)	2			25	27	7
Visitor (Vine On-Street)				18	18	4
Total	18	281	272	60	631	551 (87%)

(1) Includes spaces for school vans and drivers education vehicles

Parking permits are issued to staff and students. After the morning arrival period, 537 parked vehicles were counted, without visitors, on campus. Please note that as the weather changes and more students obtain driver’s licenses during the school year, the parking demand will increase. However, based on these counts Highland Park High School has sufficient parking for its day to day needs. Special events often require more parking than the campus supplies.

For the 2014-2015 school year, during the construction of the gymnasium and natatorium, the on-campus parking supply was reduced by 164 (-27%) spaces. Temporary remote parking lots were developed in conjunctions with the City of Highland to accommodate student parking at the St. Johns Metra lot, the 2nd Street Public Lot, on-street parking on the east side of 1st Street, and in the Moraine Park parking lot. These locations provided 86 additional parking spaces.

The overall parking demand for the school dropped from 551 to 432 parked vehicles from the previous school year. The parking demand decrease corresponds to the increase in parent drop-off activity (50-75 vehicles). In the parent focus group discussion, parents expressed their concerns about remote parking locations and preference to take their kids to school rather than use remote parking. Part of this drop can also be attributed to not over selling the smaller student parking lot to avoid stranding students with parking permits. **Table 2** summarizes the 2014-2015 parking inventory and demand.

**Table 2
Highland Park High School Parking Supply and Usage
2014 During Construction**

Lot	Accessible	Student	Staff	Visitor	Total	Vehicles Parked (9/2014)
Student	7	154	37		198	163(37 staff)
Staff/Bus	2		49		51	50
Staff	5		151		156	153
Visitor (Athletic)				17	17	3
Visitor (Vine Lot)	2			25	27	19
Visitor (Vine On-Street)	No Parking Permitted – Fire Lane					-
Remote Parking Lots						
St Johns Lot		40			40	24
2 nd Street Lot		10			10	10
Moraine Park		1			1	1
1 st Avenue On-Street		35			35	9
Subtotal (Student and Staff)	14	240	237	-	491	410 (84%)
Total	16 (-2)	240 (-41)	237 (-35)	42 (-18)	535 (-96)	432 (81%)



Data Collection

Manual traffic counts of vehicles, pedestrians, and bicycles were conducted on a weekday during the morning (7:00 to 9:00 AM) and afternoon/evening (2:00 to 6:00 PM) peak periods around the campus to coincide with school arrival/dismissal periods and the peak hours of the surrounding street system.

Counts were completed at:

- St. Johns Avenue/Vine Avenue
- St. Johns Avenue/Student Parking Lot
- St. Johns Avenue/Bus Loop and Woodpath Lane
- Vine Avenue/Green Bay Road
- 1st Street/Green Bay Road
- Vine Avenue/Staff Parking Lot
- Vine Avenue/Visitor Parking Lot
- Elm Place and St. Johns Avenue
- Maple Avenue/St. Johns

Counts were conducted at the beginning of the 2013-2014 and the 2014-2015 school years. The counts for the 2014-2015 only covered the school peak-hours and did not include the evening commuter peak-hour since they are not likely to change. Copies of the counts can be found in the **Technical Appendix**.

Peak-Hours of Activity

Three periods of peak activity were observed and indicated by the traffic counts. During the morning period, (7:00-9:00 AM), there was a combined peak of school related and commuter traffic from 7:00 to 8:00 AM. During the afternoon/early evening counts, (2:00 to 6:00 PM), there were two peaks periods. The first peak coincides with the school dismissal period and lasted from 3:00-4:00 PM. The evening commuter traffic period lasted from 4:30 to 5:30 PM.

The results of the vehicular, pedestrian and bike counts are shown in **Figures 6 and 7** for 2013-2014 school year and **Figures 8 and 9** for the 2014-2015 school year.

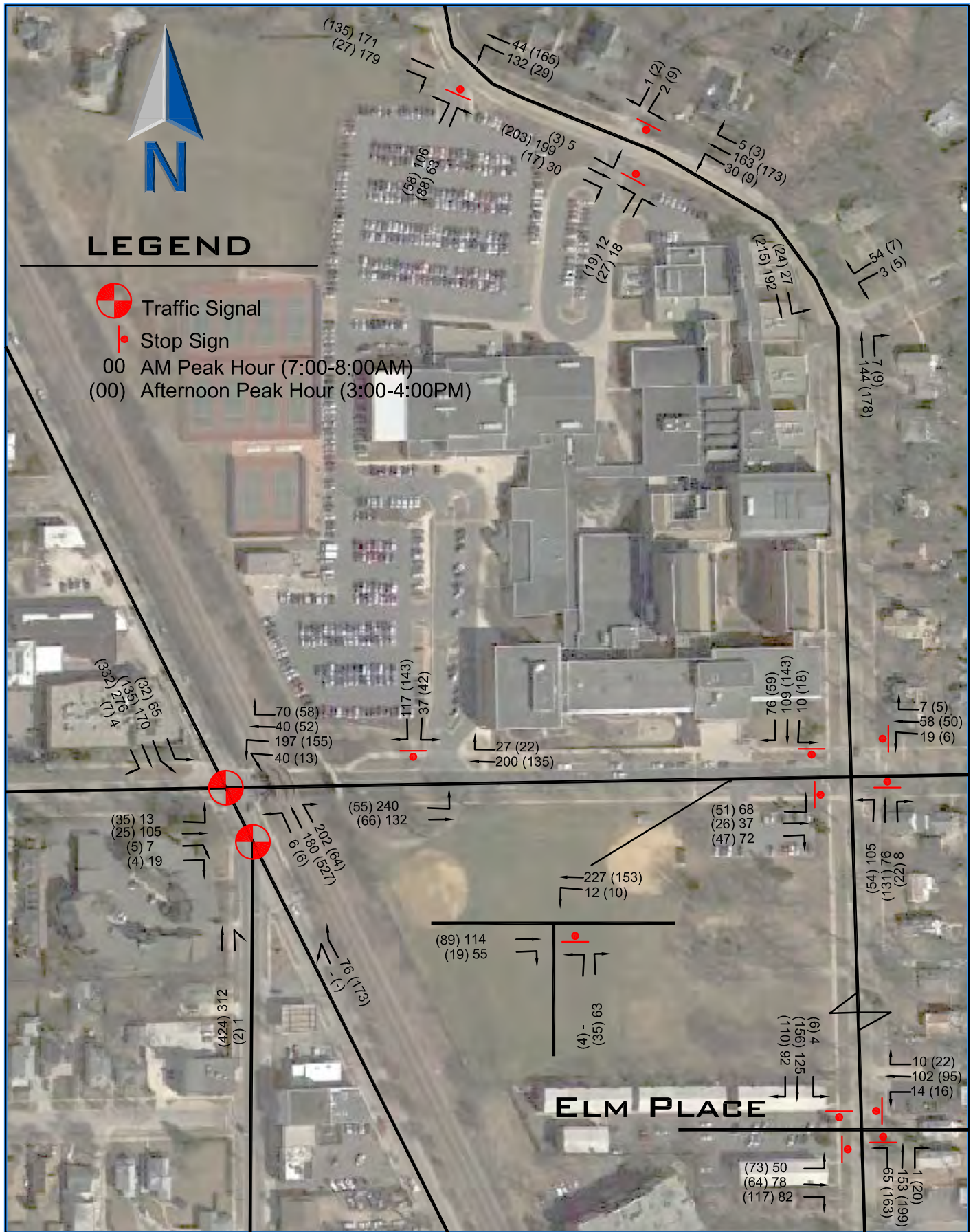




LEGEND

- 0-0 AM Peak Hour (7:00-8:00AM)
- (0-0) Afternoon Peak Hour (3:00-4:00PM)
- [0-0] Commuter Peak Hour (4:30-5:30PM)
- *All Volumes In The Form Of [Pedestrian-Bike]







Existing Intersection Capacity Analyses

Intersection capacity analyses were conducted with the proposed and nearby developments included. **Tables 3** shows the future level of service and delay results for the total traffic conditions. Overall, each intersection works well for each peak-hour based on the capacity analyses.

The North Lot driveway has geometric deficiencies as previously described which results in more congestion than indicated by the analyses.

The traffic signal at Green Bay Road and Vine Avenue/1st Street overall works at an acceptable level of service C or D during the peaks. In the morning and afternoon school peaks, westbound Vine Avenue frequently blocks the west entrance the west entrance to the school. Southbound right-turn traffic exiting the school can't turn right and stacks in the entrance. This queue also encourages parent traffic top pull into the visitor lot to drop-off/pick-up their students and turn back east to avoid the back up.

**Table 3
Intersection Level of Service**

Intersection	AM School/ Commuter Peak	PM School Peak	PM Commuter Peak
	7:00-8:00 AM	3:00-4:00 PM	4:30-5:30 PM
St. Johns Avenue at:			
North Student Lot Drive ³	LOS- A	LOS- A	LOS- A
Bus Loop and Woodpath Lane ³	LOS- A	LOS- A	LOS- A
Vine Avenue ²	LOS- B	LOS- A	LOS- A
Vine Avenue at:			
Visitors Lot ²	LOS- A	LOS- A	LOS- A
Staff/Student Drive ²	LOS- B	LOS- A	LOS- A
Green Bay Road ¹	LOS- C	LOS- D	LOS- D
Green Bay Road at 1st Street¹	LOS- C	LOS- D	LOS- D

- 1- Traffic Signal
- 2- All-Way-Stop
- 3- Two-Way Stop

3 – CAMPUS TRAVEL CHARACTERISTICS

This chapter describes how students travel to the campus

Campus Site Traffic Volumes

The traffic counts from the 2013 were compared to the 2014 traffic data to determine the amount of traffic going to and from the campus. Please note that the number of school and PACE buses did not change. **Table 4** shows the traffic counts in and out of the school driveways, the Vine Avenue loading area, and the remote parking lots (2014 only).

**Table 4
Comparison of AM Peak-Hour Traffic Volumes
Going To and From Highland Park High School**

Access	2013 Hourly Volumes			2014 Hourly Volumes			Percent Change
	In	Out	Total	In	Out	Total	
North Lot	289	142	431	311	169	480	+11%
Bus Lot	66	56	122	60	30	90	-26%
Vine Drive	290	128	418	267	154	421	+1%
Vine Loading	123	123	246	136	136	272	+11%
Visitor Lot	61	56	117	67	63	130	+11%
Remote Lots (4)	-	-	-	44	0	44	-
Total	829	505	1334	885	552	1437	+8%
Student Population	2,127			2,076			-2%
Drive and Drop	505	505	1010	552	552	1104	9%
Drive and Park	324	0	324	333	0	333	3%

Overall, while the student population dropped (-2%), the **total traffic volumes increased (+8%)**. Traffic at the bus lot did drop with a staff member there to keep out parent traffic. Student vehicles driving to the campus (including the remote lots) went up slightly. As shown, **there was major growth in parent pick-up and drop-off traffic (+9%)** at the Visitor Lot, the North Student Lot, and the Vine Loading area. The Vine West Drive did not see a major change in traffic volumes.

Student Travel Modes

Using the 2013 and 2014 data on vehicular, pedestrian, and biking volumes along with daily school bus usage data, an estimate was made on the number of students using different travel modes which is summarized in **Table 5**.

**Table 5
2013 and 2014 Student
Mode of Transportation**

Travel Mode	National Average	2013		2014		Change
		Number of Students	%	Number of Students	%	
Walk/Bike ⁽¹⁾	7.5%	400	19%	450	22%	+16%
School Bus	25.9%	280	13%	368	18%	+38%
Drive and Park	62.1%	620	29%	470	23%	-21%
Parent Drop-off and Pick-Up		817	39%	778	37%	-5%
Metra/PACE	4.5%	10 ⁽²⁾	<1%	10	<1%	-
Total	100%	2,127	100%	2,076	100%	

(1) Including students who park in the neighborhood or are dropped off near the school and walked.

(2) Students usage of Metra/PACE does occur but is minimal

As shown above, the number of students walking/biking and using the bus has increased from the previous school year. The number of students driving and parking has decreased 21%, even with the provision of remote parking locations. The number of students who were dropped off had decreased slightly from the year before (39% to 37%). However, as noted in the previous section, more parent vehicles were driven to the campus. Exact numbers are not available for the school staff but based on the parking counts, more than 90% of the staff drive and park at the school campus. Anecdotal evidence shows that staff also uses Metra and PACE.

4 - BUILDING PROGRAM

School District 113 began developing a Long Range Facility Master Plan for Deerfield and Highland Park High Schools in May, 2011. The goal was "to create facilities that foster educational excellence while respecting the District's taxpayers." By 2012, School District 113 developed a five year Capital Development Plan for Highland Park and Deerfield High Schools. The plan called for building improvements to security, HVAC, water, class rooms, fire protection, windows, and other infrastructure improvements. Each school will expand their physical education facilities with an additional gymnasium and a pool.

The building program at Highland Park High School will add additional program space and classroom for existing students and staff. Traffic volumes and parking demand at Highland Park High School will not increase as a result of these additions or improvements.

Figure 10 illustrates the proposed site plan presented in the spring of 2014.

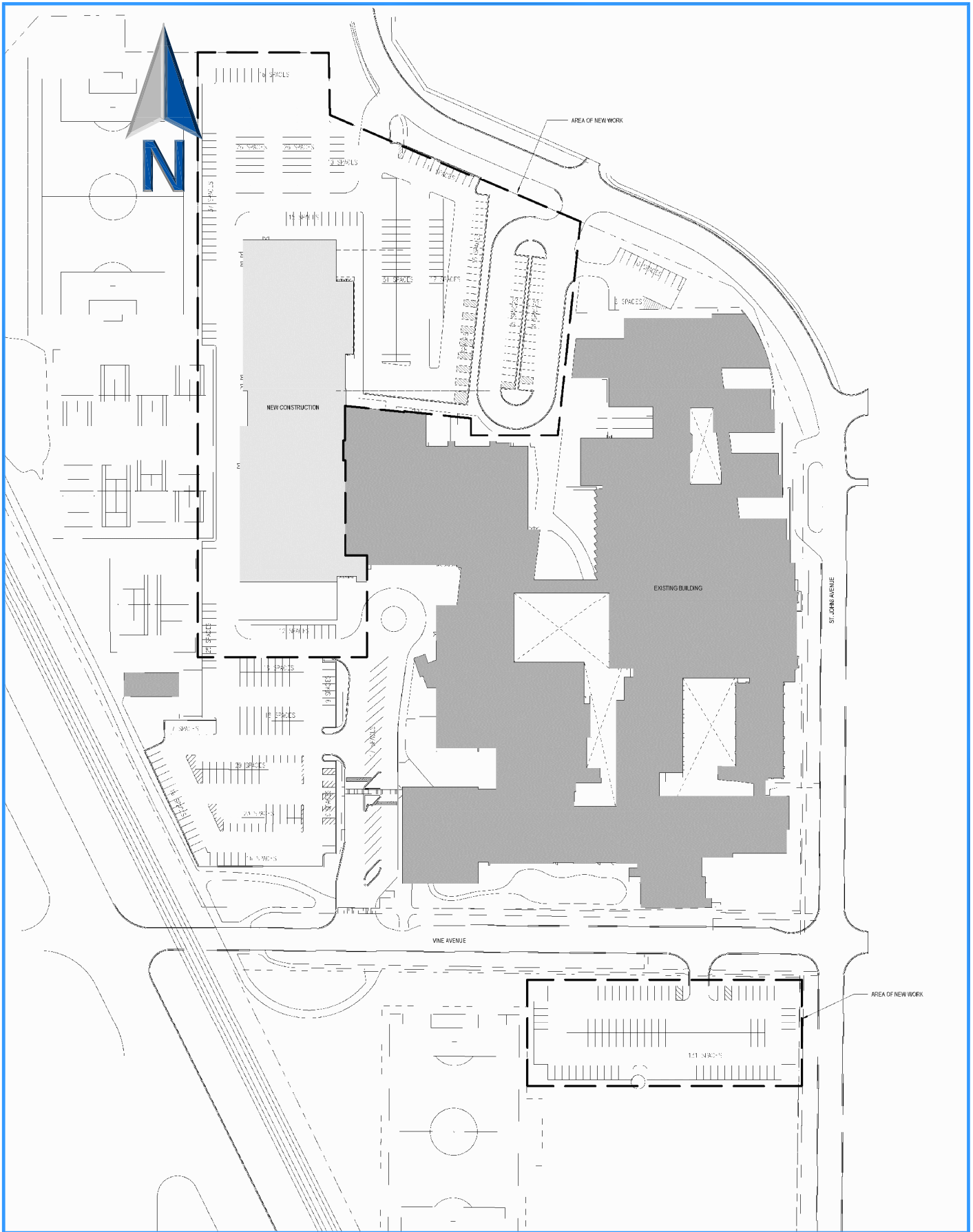
The major changes to the campus' site circulation and parking with the proposed plan are:

1. The parking lots are modified to accommodate an additional gymnasium and pool.
2. The north soccer field is moved to the west to create replacement student parking.
3. The Vine Street parking lot is increased to offset parking lost in other portions of the campus.

The plan as shown was substantially approved by the City of Highlands Park with the exception of the expanded visitor lot at the southwest corner of Vine and St. John Avenue. **Table 6** shows the parking supply before, during construction, and proposed at the campus.

**Table 6
Highland Park High School
Parking Supply**

Lot	2013	2014 Construction	Proposed
Accessible	18	16	18
Student	281	154	281
Staff	272	237	272
Visitor (Off Street)	42	42	60
Visitor (On-Street)	18	-	-
Student (Remote)	-	86	-
Total	631	535	631



5 –PARKING

The original intent of the campus improvement was not to change the total parking supply of 631 spaces on the campus. The staff parking in the bus lot did not change. With the removal of the on-street visitor parking along Vine Avenue, 18 spaces were lost at the campus. With the proposed gymnasium and pool buildings, the student and staff lots would have a net reduction of 86 spaces (50 spaces in the student lot and 36 spaces in the staff lot). These reductions are offset by an increase of 86 spaces in the Vine Street Visitor lot. During the Plan Commission review process, city staff suggested additional parking but the District 113 did not concur.

One of the outcomes of the focus groups was the existing student parking in the neighborhood where local residents rent them spaces. This activity further reinforces the need for more parking on the campus. Based on the review of the existing parking conditions, there is a need for additional parking on the campus. With the demand for parking in the neighborhood, the overselling of parking spaces, and juniors requesting but not receiving permits. The additional parking needed would be in the range of 70 to 100 spaces assuming no changes in the travel behavior of students and staff. Increases in carpooling, school bus usage, walking, and biking will mitigate part of this additional need.

Parking Alternatives

A number of parking alternatives were developed for the campus by the District 113 staff, advisory committee, and project team resulting in more than 150 possible combinations and impacts. A number of alternatives were quickly eliminated because they did not provide enough parking or provided more than 631 spaces. The remaining alternatives were then vetted on their impact on traffic, the neighbors, cost, athletic fields, and student loading operations. Based on the analyses two changes were proposed. One was to expand the Athletic Lot to 239 spaces and to reduce the Vine Street Lot to 115 spaces. The north student lot still provides the majority of the student parking, 232 spaces, with 56 spaces to be located in the existing athletic lot, south of the pool building. Approximately 70 staff will be relocated in the expanded Vine Street lot due to the relocation of student spaces. **Table 7** summarizes the revised parking totals by area and classification.

**Table 7
Proposed Parking Supply and Usage**

Lot	Accessible	Student	Staff	Visitor	Total
Student	7	225			232
Staff/Bus	2		49		51
Athletic	5	56	158	17	236
Vine Lot	2		70	43	115
Total	16	281	277	60	634

Please note that the Vine Lot will be for staff and visitor parking. No students will be allowed to park in the lot. Staff traffic volumes mostly occur before or after the peak student traffic periods.

Structured Parking

Structured parking generally costs between \$15,000 and \$20,000 per parking space. A 130 space parking garage would cost \$1,950,000 to \$2,600,000. While a garage could be developed in the northwest portion of the campus, budgetary concerns eliminated this option early in the site planning process.

Permanent Remote Parking

The temporary remote parking plan for Highland Park High School was implemented the 2014-2015 school year at four locations. The anticipated benefits of remote parking were a reduction in traffic around the school and less parking needed on the campus. However, traffic to and from the campus increased by 8%. Remote parking did not provide the anticipated reduction in congestion around the high school campus. In fact, it increased congestion. This is consistent with the feedback from two of the focus groups prior to its implementation.

Surface Parking at the Tennis Courts or Athletic Fields

Creating additional parking on-campus north of Vine Avenue will add more traffic to the two high school driveways on Vine Avenue and St. Johns Avenue maintaining the existing congestion at those drives. Parking lots will require the relocation of athletic facilities and activities at an additional cost.

5 – VINE AVENUE ONE-WAY

This chapter discusses the impact of making Vine Avenue one-way eastbound or westbound near the high school to improve overall vehicular traffic flow and safety. Making Vine Avenue one-way in front of the Highland Park High School would improve traffic in front of the school but will shift the congestion from one location to another and have safety implications at the signalized intersection, increased pedestrian conflicts, and additional train and vehicular conflicts.

Previous Study

In 2006, CivilTech Engineering reviewed the possibility of making Vine Avenue one-way during the arrival and dismissal periods to simplify and improve traffic flow. They concluded:

“While this change would benefit the intersection of Vine/Green Bay and First Street, the impact would be negative on other nearby intersections, particularly at Green Bay and Elm Place, which is signalized, and First Street and Elm Place and Green Bay and Bloom, which are not signalized intersections. Furthermore, loading and unloading passengers into a traffic lane presents a safety problem and is not recommended.”

Vine One-Way Westbound

One concept was to make Vine Avenue one-way westbound from Green Bay Road to St. Johns Avenue along the south side of the school. Student loading will still occur, as it does today, on the north side of Vine Avenue. Traffic at the visitor parking lot would be left-in and -out only. The West Vine school drive would then be right-in and out only. At Green Bay Road, Vine Avenue could use the existing two lanes, a left-turn lane and a shared thru/right-turn lane to create more capacity at the traffic signal. The potential benefits of the configuration are:

- Increased capacity for westbound Vine Avenue at the Green Bay Road traffic signal with two lanes versus one lane.
- Simplified flows in and out of the school driveways.
- Elimination of the eastbound left-turn blockage at the west drive.
- Keep student loading along the school frontage.
- One-way designation would only occur during school hours (6:00 AM to 4:00 PM)

The traffic signal at Green Bay/Vine/1st would have to be rebuilt with special signal heads and signage to support the one-way restrictions (\$2-300,000). For example, the traffic signal would have “no left, thru, or right-arrows” to be used on school days for traffic heading east on Vine Avenue. Restricting the northbound right, eastbound through, and southbound left-turn movements is further complicated by each of those movements since they share a lane with other traffic movements. For example the eastbound approach lane also serves right and left-turn movements. Due to the curves in Green Bay Road advance warning would be needed.

EEA reassigned the existing (2013) Vine Avenue and school traffic volumes based on Vine Avenue being one-way westbound. Most high school traffic comes from the south and west. Most of the traffic that was eastbound on Vine Avenue would go eastbound on Elm Place then north on St. Johns Avenue to westbound Vine Avenue. There would be minimal usage of Bloom since drivers would have to go north and then go south (roughly 1.5 miles vs 0.15 miles) to get back to the school. **Figure 11** shows the total one-way west bound traffic volumes.



Vine Avenue One-Way Westbound
Figure 11

The change to a one-way road results in a drop in the morning peak-hour in traffic volume at the Green Bay signalized intersection with a corresponding traffic increase at Elm Place and St Johns (See **Table 8**).

Table 8
Change in AM Peak Traffic Volumes
Vine One-way Westbound

Intersection	Existing	Vine Westbound	% Change
	Hourly Volume		
Green Bay/Vine Avenue	1,467	1,035	-30%
Elm Place/St. John Avenue	776	1,032	+33%
St. John Avenue/Vine Avenue	625	789	+26%

The Vine Street lot access and the West Vine Access will operate better under a one-way system as would as the intersection of Green Bay Road at Vine Avenue/1st Street. However, the AWSC intersections on St Johns Avenue and Elm Place will see more congestion. With the additional eastbound traffic on Elm Place, the west leg will operate at LOS F and back-up across the railroad tracks.

Table 9
Vine Avenue Westbound
Intersection Level of Service and Delay

Intersection	Existing	Vine One-Way Westbound
	7:00-8:00 AM	7:00-8:00 AM
Green Bay/Vine Avenue	LOS- C – 29.6	LOS- B - 17.2
Elm Place/St. John Avenue	LOS- B – 13.4	LOS- E – 37.2
St. John Avenue/Vine Avenue	LOS- B – 10.5	LOS- C – 17.2

Based on this analysis, there will be several negative impacts with Vine as a one-way street westbound:

1. Increased traffic on St. Johns Avenue and Elm Place.
2. More congestion on the east side of the campus.
3. From 7:00 to 8:00 AM, there are at least five trains crossing the railroad tracks on Elm Place impacting the traffic flow to the school. If each cycle of the gate closure is approximately three minutes long, 15 minutes or 25% of the roadway capacity is lost.
4. Additional school traffic at an at-grade rail crossing is not as safe as a grade separated crossing.
5. There will be more traffic (256 vehicles in the morning) traveling past Indian Trail Elementary School's access drives thereby creating more conflicts.
6. Changes at the Green Bay/1st/Vine traffic signal will require it to be rebuilt.
7. Creates traffic safety concerns due to driver confusion when a traffic signal permits restricts certain movements for several hours during the school day and not on other days.
8. Additional westbound traffic will use the loading zone along Vine Avenue in front of the school causing more back-ups into the Vine/St. Johns intersection.

Vine One-Way Eastbound

The second concept is to make Vine Avenue one-way eastbound from Green Bay Road to St. Johns Avenue. Student loading would have to occur on the south side of Vine Avenue. Traffic at the visitor parking lot would be right-in and right-out only. The West Vine school drive would then be left-in and out only. At Green Bay Road, Vine Avenue westbound would not be used. The potential benefits of the configuration are:

- Increased capacity for eastbound Vine Avenue at the Green Bay Road traffic signal.
- Simplified flows in and out of the school driveways.
- Elimination of the eastbound left-turn blockage at the west drive.
- One-way designation would only occur during school hours (6:00 AM to 4:00 PM)

EEA reassigned the existing (2013) Vine Avenue and school traffic volumes based on Vine Avenue as one-way westbound. Most high school traffic comes from the south and west of the high school. Most of the traffic that was westbound on Vine Avenue would go eastbound on Vine Avenue to south on St. Johns Avenue to westbound on Elm Place. There would be minimal usage of Bloom since drivers would have to go north and then go south (roughly 1.5 miles vs .15 miles) back to the school. The traffic volumes are not shown but the results are very similar to the westbound only Vine Avenue alternative. Traffic would increase along St Johns Avenue and decrease at the traffic signal.

Vine Avenue one-way eastbound will have several negative impacts:

1. Increased traffic on St. Johns Avenue.
2. More congestion on the east side of the campus.
3. From 7:00 to 8:00 AM, there are at least five trains crossing the railroad tracks on Elm Place impacting the traffic flow to the school. If each cycle of the gate closure is approximately three minutes, 25% of the roadway capacity is lost.
4. Additional traffic at the at-grade rail crossing is not as safe as a grade separated crossing.
5. More traffic will travel past Indian Trail Elementary School's access drives creating more conflicts.
6. Changes at the Green Bay/1st/Vine traffic signal would be required but not as extensive as the westbound alternative.
7. Dropping off students on the south side would add approximately 150 to 200 more students crossing Vine Avenue. Ideally, they would cross at a designated crossing. Experience at other high schools indicates that crossings at multiple locations will occur.
8. A sidewalk along the curb would be required with accessible ramps at the west end to accommodate the grade changes.

Impact on Emergency Services

Preliminary discussions with the City of Highland Park Police and Fire Departments indicated that a one-way system would negatively impact response to calls at the high school and northeast portion of the City by restricting one of the few grade separated crossings of the train tracks in the City of Highland Park. Also, the addition of several hundred cars at the Elm Place crossing could slow emergency response to the Indian Trail and Elm Place schools during peak travel times.

Turn Restrictions and One-Way Traffic Flow on Campus

Additional alternatives were analyzed with various turn restrictions at the Athletic and Student Lot entrances or making traffic flow through the campus one-way northbound (entering on Vine and exiting on St. Johns) to improve overall traffic flow. However, similar to making Vine Street one-way, school traffic was diverted to alternate routes and causing more congestion/safety issues at other locations.

For example, the southbound traffic turning right into the student lot in the morning is 203 vehicles per hour. Under the one-way through the campus scenario, these volumes would be diverted to the southbound left-turn on Green Bay Road or the St. Johns/Vine intersection and increasing the congestions at each intersection. Another example is restricting left-turns into the Athletic Lot would reroute traffic to Elm Place and the St. Johns/Vine intersection and increase congestion there.

Summary

Based on the above review, making Vine Avenue one-way in front of the Highland Park High School would improve traffic in front of the school but will shift the congestion from one location to another and have safety implications at the signalized intersection, increased pedestrian conflicts, and additional train and vehicular conflicts. Other alternatives resulting in turn restrictions will have similar impacts.

6 - STUDENT LOADING

As previously mentioned, there are three marked and two informal loading areas around the campus. They are:

- North Student Lot (marked)
- West Staff Lot (marked)
- North side of Vine Avenue (marked)
- Vine Visitor Lot (informal)
- At the Vine Avenue/St. Johns intersection and to the east (informal)

In the newly constructed north student lot, the loading area has been increased. The west and south side of the lot now provides loading zones by the gym entrance (west) and the north building entrance (south). When combined, the two loading areas provide capacity for 17 vehicles (340 feet). The loading zone works well today. Access into and out of the lot will be addressed later in this report.

The west staff lot has a loading zone by the athletic entrance and the library entrance. Entering and exiting the loading area is congested due to back-ups from Vine and the Green Bay Road traffic signal.

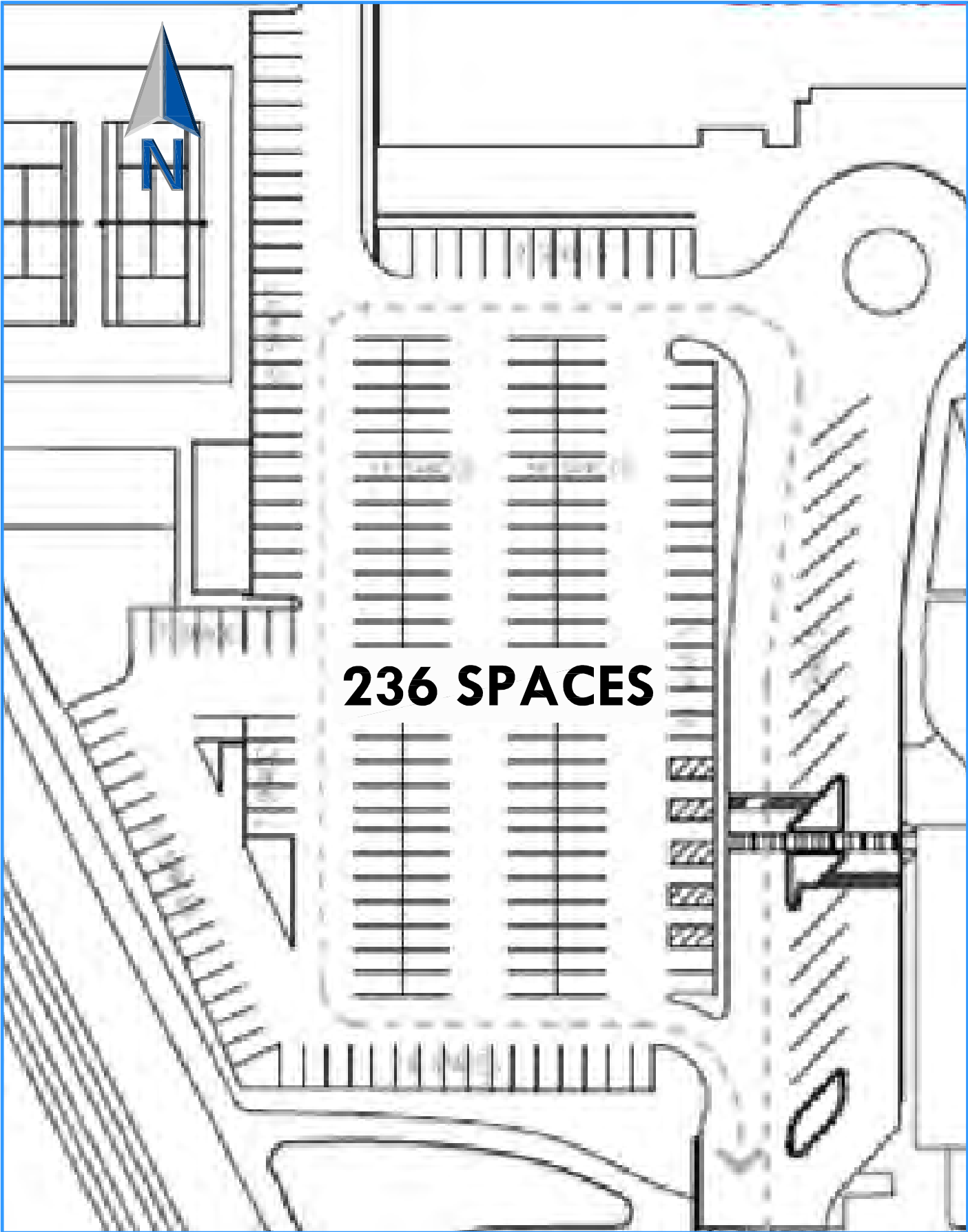
Prior to the 2014-2015 school years, the loading area along the north side of Vine Avenue (450 feet long) provided 18 visitor spaces. These spaces have been removed for a designated fire lane. In the current configuration, school staff has been monitoring the loading which has improved its operations. However, back-ups are continuing to interfere with the Vine Avenue and St. John Avenue intersection. Parents are have been using Vine Avenue east of St. Johns as an over flow loading area.

Based on the prior review, making Vine Avenue one-way in front of the Highland Park High School would improve traffic in front of the school but will shift the congestion from one location to another and have safety implications at the signalized intersection, increased pedestrian conflicts, and additional train and vehicular conflicts.

An option is to create another loading area(s) to reduce activity in front of the school and neighbor residences. Alternate locations would also be used to eliminate or minimize the traffic congestion and safety concerns. Several new loading options were considered at other locations.

On-street loading areas were considered along the south side of Vine Avenue and the west side of St. Johns Avenue. Due to the road curvature and terrain, St. Johns Avenue will not be a safe area for a loading zone. Dropping off students on the south side of Vine Street would add approximately 150 to 200 more students crossing Vine Avenue. Southbound traffic could back-up into the St Johns/Vine intersection. Ideally, they would cross at a designated crossing. Experience at other high schools indicates that crossings at multiple locations will occur. These options are not safe.

Additional on-campus loading was improved by reconfiguring the athletic lot to add additional parking and provided more queuing space for the exiting traffic. Additional spaces is provided for 15 vehicle which allows parents to drop-off their student and then get out of the loading zone while waiting to turn onto Vine Street. This will minimize any inbound backups that block Vine Street. **Figure 12** illustrates the proposed lot configuration.



South of Vine Avenue, the redesign of the visitor lot replaces off-street parking spaces lost to the north and creates a one-way circulation pattern within the lot for parents dropping-off or picking-up their students. These parking spaces will be designated for staff parking, which have arrive before or depart after the peak student travel times.

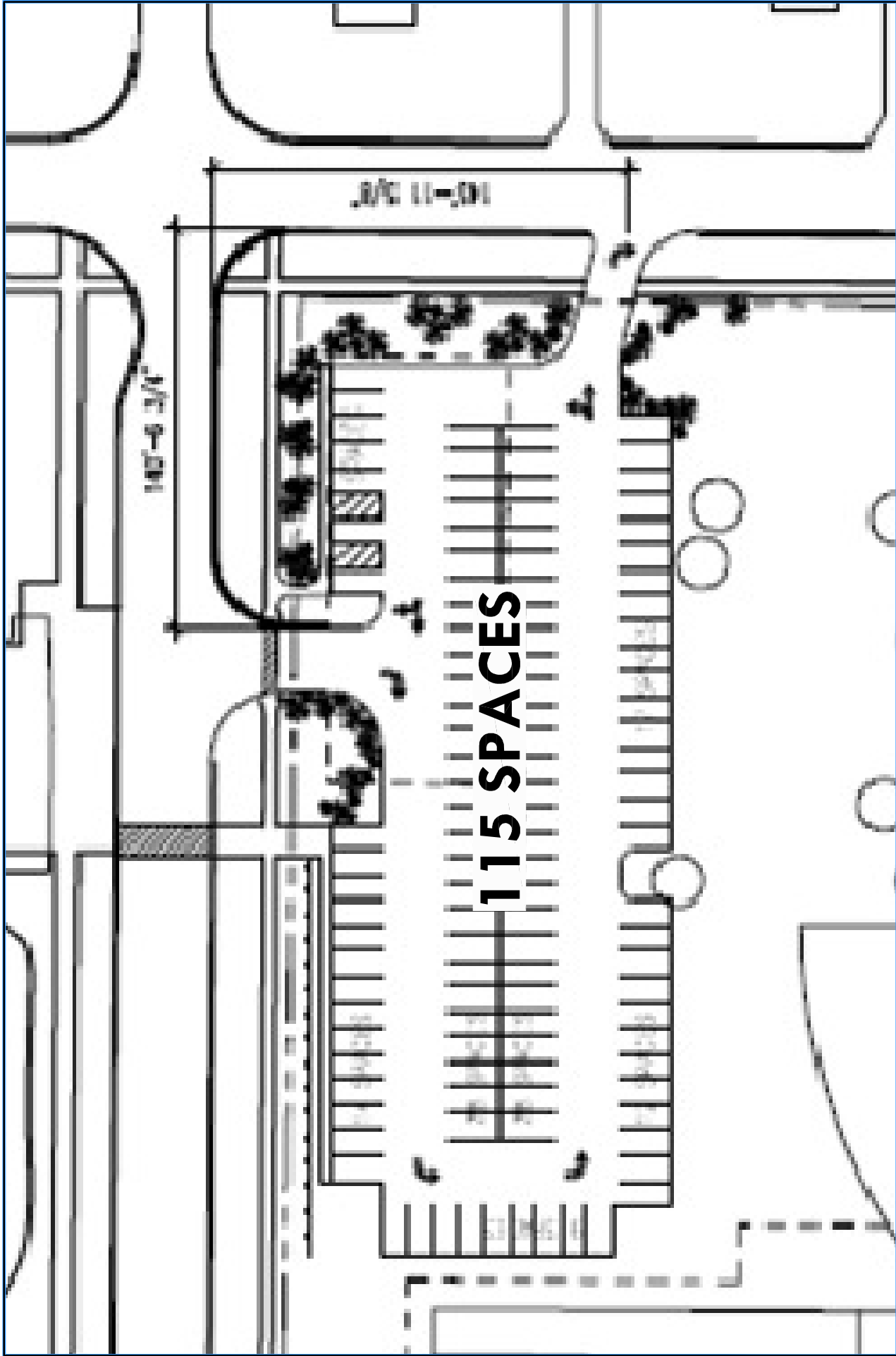
Access would be on Vine Avenue (right-in only) and right-out access onto St. Johns Avenue before or after school. Other times of the day, the Vine Avenue access could remain as full access for visitor traffic. A school staff member currently monitors the access drive and will continue to do so in the future. School traffic eastbound on Vine Avenue would turn right-in the lot, travel counter clockwise, drop-off/pick-up their student and then exit on St Johns Avenue and avoid the Vine Avenue intersection. **Figure 13** illustrates the lot layout.

Student loading will occur on the north side of the lot and west of the access drive. There are approximately 14 parking spaces that will be reserved for visitors with parking prohibited during arrival and dismissal which was similar to the original operation of the Vine Avenue on-street visitor parking spaces. Students will exit the vehicle and be directed to the existing crosswalk on Vine Avenue. A fence or other barrier will be located between the parking lot and the Vine Avenue to direct students to the crosswalk. During the afternoon dismissal, parent traffic will be able to queue in the drive aisle of the lot.

The expanded lot will provide additional off-street loading capacity and give eastbound Vine Avenue traffic an alternate loading location to the athletic lot. As previously mentioned, if the athletic loading area backs up to Vine Avenue, parents can be directed by a staff member to continue onto the Vine Avenue lot and not block traffic. In the past, U-turns have been a problem in the past when impatient parents cannot go into the athletic lot so they went past and turned around to drop-off their student. Signage has been posted prohibiting U-turns which remain in place.

Summary

The three marked loading zones currently cannot handle the total volume of drop-off traffic at Highland Park High School. As a result, parents are using the Vine Avenue visitor lot and the Vine/St. Johns intersection to drop off students. Neighbors have noted that parents are also using their driveways as loading areas. Additional loading zone capacity in the Athletic and Vine Street Lots will move congestion off the public street system.



7 - INTERSECTION ANALYSES

North Student Lot Driveway

The entry to the North Student Lot from St. Johns Avenue has one inbound lane and two outbound lanes (right and left) under stop sign control. St. Johns Avenue has one lane in each direction without turn lanes. Capacity analyses indicated that this entrance should work better than what has been observed in the field.

The driveway has a very tight turning radius on the southwest corner (2-3 feet) for right-turns in and 10 foot radius on the southeast corner for right-turns out. Also, the drive is not perpendicular to St. Johns Drive and has a curved approach. As a result, vehicles turning in and out of the driveway have overlapping turning paths that slow or stop the flow of traffic. This causes traffic back-ups for left turning traffic into and out of the parking lot. The driveway should be improved to accommodate the turning paths without overlap with a wider width and turning radi. This will improve vehicle safety and intersection capacity.

This intersection does not meet the minimum warrants for an All Way Stop Controlled (AWSC) intersection or a traffic signal. A traffic warrant is the minimum requirement needed to install a stop sign or traffic signal based on various criteria such as traffic volumes, crash reduction, and pedestrian protection. The minimum traffic or pedestrian volumes are not met for a traffic signal or an AWSC intersection. Putting stop signs on northbound and southbound St. Johns Avenue, which are only needed for 30 minutes in the morning and in the afternoon, will cause more traffic delays throughout the day. Also, with school in session for part of the year, drivers will be inclined to roll through the stop and cause other safety problems. The same problems will occur at a traffic signal that is only needed for short periods of time. School staff is now stationed at this intersection during morning peak times to help direct traffic which improves the flow.

In lieu of full time traffic control, a school staff member has been directing traffic at the intersection starting in the Fall of 2014 and has improved the traffic flow.

Vine Avenue and the Athletic Lot Drive

This driveway at Vine Avenue will not be modified and will retain its one inbound and two (right and left) outbound lanes. With the redesign of the parking, the lot will have 37 more spaces and reroute the exiting traffic thru the lot to the exit. The benefit of this design is preventing exiting traffic from blocking the loading area and queuing onto Vine Avenue. A school staff member has been directing traffic at the intersection starting in the Fall of 2014 and has improved the traffic flow.

Vine Avenue Access

The existing driveway on Vine Avenue will serve the expanded staff and visitor lot. During peak arrival and dismissal time, the drive will be right-turn in only (eastbound) with no left-turns or right-out permitted. It will be enforced by the staff member currently at the drive this school year. Drivers will turn right into the driveway and circulate counter-clockwise through the lot. A designated location for drop-off is located in the northwest section of the lot. A fence will direct students to the existing crossing location to the high school. Since the drive will be right-turn only, traffic will move freely. With a loading zone and parking lot south of Vine Avenue, a right-turn in only could be developed to allow eastbound traffic to enter. Exiting traffic would use a new access point on St. Johns Avenue and avoid the AWSC intersection.

Students will use the Vine Avenue crosswalk west of the lot entrance. With the revised traffic pattern, the volume of morning traffic will drop by 73 vehicles per hour. This will improve vehicle delays by 10% with the reduction in volume and even more with the reduce drop-off congestion. The right-out only will slightly increase traffic southbound on St Johns Avenue. Revised traffic volumes are shown in **Figure 14**.

Vine Avenue and St. Johns Avenue

Parents have been observed dropping-off/picking-up their students while stopped at one of the Vine/St. Johns intersection stop signs. The student then goes thru the parkway to the sidewalk. This activity needs to be discouraged since it creates delays and pedestrian/vehicular conflicts. Signage, police enforcement, and reminders to the parents have been provided during the beginning of the 2014 school year which has reduced this activity.

This intersection does not meet the warrants for a traffic signal which require a minimum of 500 to 1,000 vehicles per hour on one of the two streets. Neither street comes close to these volume levels.

Neighborhood Driveway Usage

Communication and periodic police enforcement is needed to discourage parents from pulling into neighbors driveways to get their students. Improvements to the loading procedures, including the Vine Avenue lot, would minimize this activity.

Vine Avenue and Sheridan Road

The intersection of Vine Avenue with Sheridan Road is located about 700 feet east of St. Johns Avenue. Both roads have one lane in each direction. Stop signs are located on the Vine Avenue approaches with crosswalks on all four legs. Sheridan Road has a 30 mph speed limit. A crossing guard is located at this intersection for students at Indian Trails Elementary and Elm Place Middle schools. Some delays are created at the intersection when the crossing guard stops traffic for crossings. When school traffic is congested, backups along Vine Avenue can impact Sheridan Road. However, with the proposed improvements around the high school, these impacts should be minimized.

Vine Avenue at Green Bay Road and 1st Street

Overall, both intersections operate with a good level of service. In the morning and afternoon school peaks, westbound Vine Avenue periodically backs up from the traffic signal and blocks the west entrance to the school. Southbound right-turn traffic exiting the school can't turn right and stacks in the entrance. Additional green time for the Vine Avenue would help reduce this queue during the peak school hours without significantly impacting Green Bay Road traffic. It is recommended that the green time be increased from 35 to 45 seconds. Capacity analyses in the appendix show the revised timings.

The City of Highland Park long range plan is to create two separate traffic signals serving Vine Avenue and 1st Street individually instead of one large signalized intersection on Green Bay Avenue. The benefit of the improvement is shorter clearance times (yellow and all-red) creating more green time for traffic. No time frame has been developed for this improvement.

Proposed Dunkin Donuts

A Dunkin Donuts with a drive-thru window and other retail spaces has received approval at the southeast corner of Green Bay Road and Park Avenue. That site is currently occupied by a Mobil gas station. At the request of the community, EEA obtained a copy of the traffic study to determine the potential impact on traffic conditions near the high school.

The proposed Dunkin Donuts store is located about one quarter mile south of Vine Avenue on Green Bay Road. It is replacing an existing Mobil gas station. A traffic study by Gewalt-Hamilton Associates, dated May 12, 2014, shows a net increase in traffic of 5 to 10 vehicles per hour on Green Bay Road to the north. This net increase accounts for the existing traffic at the Mobil gas station and that the majority of the Dunkin Donuts traffic is by-pass traffic. Bypass traffic is existing vehicles that will stop at the Dunkin Donuts on their way to work, the train, or school. As a result the growth in new traffic is minimal. Traffic from the proposed Dunkin Donuts store will not have an impact on the high school traffic flows.

Linden Avenue

Linden Avenue is a north-south collector road between Lake Michigan and Downtown Highland Park. It is used as an approach route to the high school for the neighborhoods to the southeast. The alternative route is to take Sheridan Road/St. Johns Avenue through the Downtown area which is impacted by the train crossings. Since Linden Avenue is a designated collector road, it is not unreasonable for school traffic to use it to avoid traffic congestion in the downtown area. In fact, three schools have traffic using Linden Avenue; Highland Park High School, Elm Place School, and Indian Trail School. Please note that the North Shore School District 112 is considering changes to their Indian Trail and Elm Place schools that may lessen the traffic volumes on Linden Avenue. Specific traffic issues were not mentioned in a resident's letter so EEA suggests that the Police Department monitor the travel speeds to verify if Linden Avenue warrants additional speed control.

North Shore School District 112

North Shore School District is currently going through a long-term analysis of their district including consolidating some of their facilities. Some of the scenarios involve the Indian Trail and Elm Place school campuses. There are opportunities for the two districts to work together to improve the traffic conditions where the schools' traffic overlap. This opportunity will take several years to review and implement.



8 – SAFETY

Existing Crash History

The Highland Park Police Department provided nearly six and a half years of crash data on and around the high school campus. Over that period 144 crashes were recorded of which 115 occurred during the school year. The overall crash rate is low. The report concluded:

“After further review of the accident data, it was determined that 115 collisions occurred in the area of Highland Park High School over the 6.5 year period of analysis when school was in session. 84% of these were non-injury accidents, which is equal to the percentage of non-injury accidents before correcting for school breaks.

A closer examination of accident locations revealed four sites specifically related to the high school that required further analysis – the driveways and the parking lots. 57 collisions occurred in these four locations. Additional analysis showed that 41 of said 57 collisions (72%) occurred in the high school parking lot itself, mostly due to vehicles pulling in or backing out of lined parking spaces. Accidents also occurred in each of the three driveway intersections. The driveway with the most collisions was the northeast driveway across from Wood Path. There were five total collisions at this driveway, one of which resulted in injury to one or more involved parties. Each of the other two driveways had two collisions apiece. “

Vehicle Speeds

The Highland Park Police Department provided the results of speed surveys on St. Johns Avenue which indicated that the 85 percentile speed was 32-33 miles per hour. The 85 percentile speed is the travel speed that 85% of the surveyed vehicles traveled at or below the designated speed. With the posted speed limit at 25 miles per hour on St. Johns Avenue, existing users are regularly exceeding the speed limit. Please note that the surveys were conducted throughout the day and included high school, commuter, and resident vehicles.

Current Illinois law sets the speed limit based on the prevailing speed (the 85%) along that section of road. Based on the current speed data, a speed limit lower than 25 mph is not justified by the high school. However, a “School Speed Limit – 20 MPH” signs has been installed on Vine Avenue between Green Bay Road and Vine Avenue and on St Johns Avenue from south of Vine Avenue to Orchard Lane. These locations have student pedestrian activity and would give drivers additional warning on school days. It also gives the Police Department additional ability to enforce the speed limit.

Most traditional traffic calming devices, such as speed humps and narrower roadway sections would not be appropriate on the curved portion of St. Johns Avenue due to sight distance and width constraints. A permanent, solar powered, speed monitoring sign that flashes the vehicles travel speed (versus the speed limit of 25 mph) could be provided north and south of the school. This signage has proven to reduce travel speeds in other communities and educates the public as to their speed. This would be in operation 24 hours a day/seven days a week.

Pedestrian Crosswalks

The existing crosswalks around the campus at the intersection of St. Johns and Vine Avenues and at Green Bay Road and Vine Avenue are appropriate and should be checked and repaired/restriped as needed. Also the crosswalks across the three high school driveways should be repainted as needed. Solar powered flashers can be added to the signs programmed to flash during school days and hours for additional visibility. Additional signage can be placed in the crosswalk indicating that stopping for pedestrians is state law.

During the school day, gym classes frequently exit the high school building by the Vine Avenue driveway and cross the Vine Avenue to the outside play fields to the south. No crosswalk is provided.

Two options exist for gym classes to cross Vine Avenue between the school building and the fields;

1. Have classes use the McClory Path Bridge to cross Vine Avenue without any vehicular conflicts. This is approximately a 650 foot walk.
2. Cross Vine Avenue with a new crosswalk at a walking distance of 70 feet.

The first option eliminates the conflicts with Vine Avenue traffic but increases the walking distance. Most likely a staff member would need to monitor the crossing so students would not take the short cut. The other acceptable option is the crosswalk but the exiting grades make it challenging as an ADA accessible path.

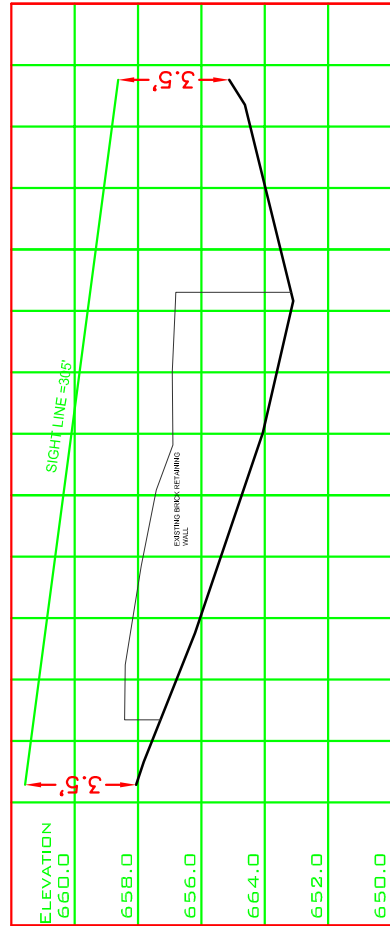
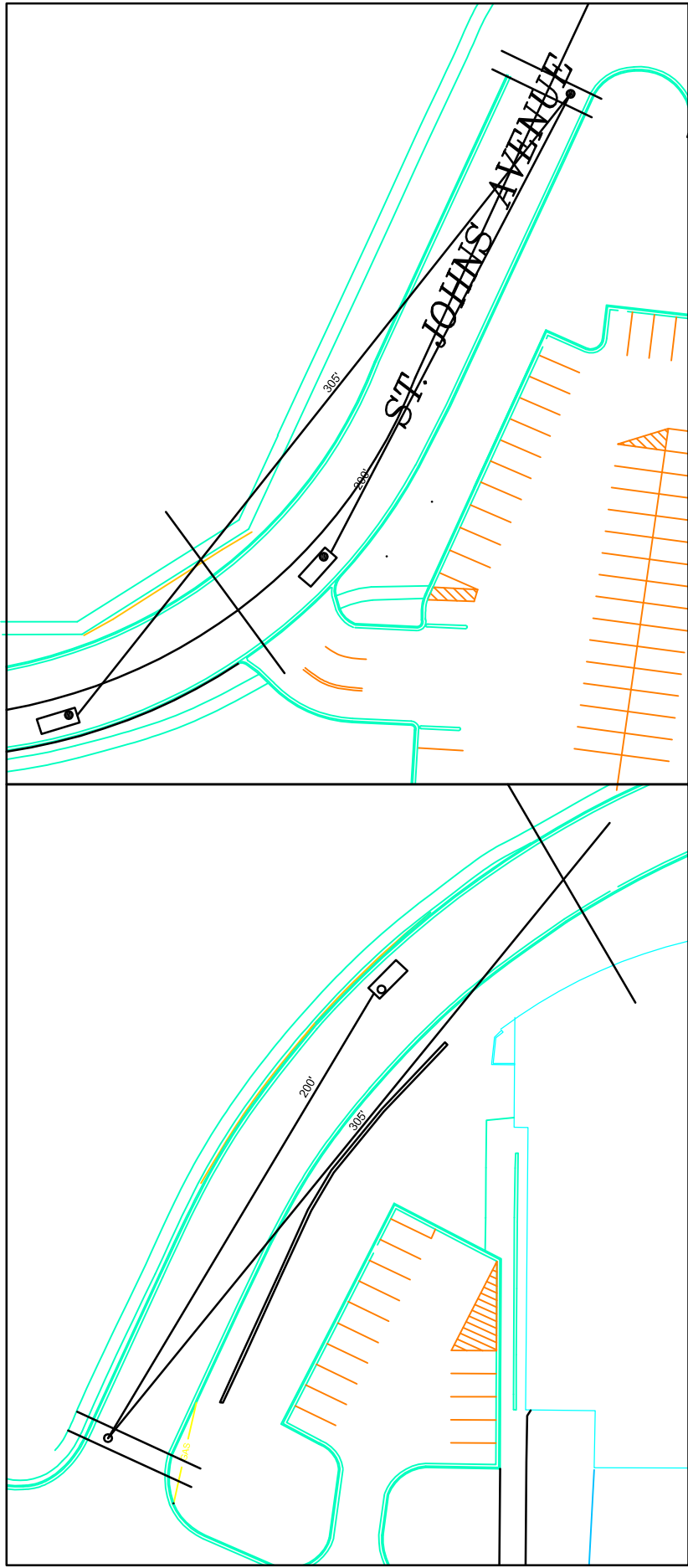
St. Johns Pedestrian Crossings

During the 2014 counts, students were observed crossing St. Johns Avenue at the following intersections:

- Maple Avenue – 0 (AM) and 6 (PM)
- Bus/Woodpath – 21 (AM) and 2 (PM)
- North Parking Entrance – 0 (AM) and 6 (PM)

These intersections do not qualify for an all-way-stop-sign traffic control because they do not meet the minimum volume thresholds prescribed by the *Manual of Uniform Traffic Control Devices* (MUTCD). All-way stops require a minimum of 300 vehicles per hour on St Johns and 200 vehicles and pedestrians per hour on the side streets for at least eight hours a day.

The existing curvature of St Johns Avenue makes it difficult to provide adequate driver sight lines for vehicles approaching a marked crosswalk and allowing them to react and stop for a pedestrian as required by state law. Since the actual average running speed on St Johns Avenue is 32/33 mph, the required stopping sight distance is 305 feet. For an average running speed of 25 mph stopping sight distance is 200 feet. If St. Johns Avenue is posted for a 20 mph school speed limit, the lower speed limit cannot be used since the crosswalk would be available for use all day long when the school limit is not in affect. The speed reduction zone has been implemented and is being monitored for its effectiveness. **Figure 15** illustrates the sight distance analysis for the Bus Access/Woodpath intersection. It shows that traffic approaching a crosswalk would have its line of sight block by oncoming vehicles.



Sight Line Study

Figure 15

A pedestrian-only traffic signal for a crosswalk was reviewed for all three locations. If such a signal was installed, it would require advance warning signs and lights letting drivers know to be prepared to stop. All three locations do not meet the minimum warrants of 750 vph along St. Johns Avenue and 400 pedestrian crossings in an hour.

District 113 staff has been directing traffic at the north student lot and the bus access before and after school. They have been also been stopping traffic to allow students to cross St. Johns Avenue. If this practice continues, advanced warning signs should be placed and the staff wears a safety vest and use a hand held stop sign.

Sidewalks

During the approval process, District 113 committed to providing a sidewalk on the west side of the campus between the North Lot drive to Maple Avenue. The construction of a sidewalk would require the sidewalk to abut the existing curb and due to the severe cross slopes in that area it would require an additional retaining walls and relocation of power poles. The sidewalk would have difficulty meeting ADA standards. The biggest concern would be the safety of anyone using that walk adjacent to the road. This type of sidewalk design will leave little room for plowed snow. Once students are accustomed to using this walk they will continue to try to use it after a snow storm and may be forced to walk in the street. Please note that there is only 18-20 feet between the road and the school building and the existing landscaping would have to be removed to provide the walkway. The safest alternative is to direct the students exit through the building to the south rather that use the north entrance and walk near the street.

During the winter of 2013-2014, the heavier than normal snow falls resulted in sidewalk being blocked by snow throughout the Highland Park community. Traditionally, the sidewalk in front of a business, home, or institution is the responsibility of the property owner. The School District is working with the City of Highland Park to consistently clear walking paths to the school during the winter.

Police Enforcement and Traffic Control

The Highland Park Police Department has been working with District 113 and has improved overall traffic flow during the fall of 2014, even with the higher traffic volumes.

SUMMARY

A number of ideas improving the transportation system for Highland Park High School are presented in this report for review by District 113, the City of Highland Park, students, parents, neighbors, and the community. These ideas will now be presented to the stake holders for their input and comments. With this input, a final transportation plan will be developed for Highland Park High School.

The plan will consist of the following elements:

1. Parking returned to pre-construction level of 631 spaces.
 - a. Athletic Lot expanded by 37 spaces
 - b. Vine Visitor Lot expanded to 115 spaces
2. Student loading areas expanded off-street.
 - a. Athletic Lot increased queuing
 - b. Vine Visitor Lot to accommodate loading
3. Improved Management of Traffic
 - a. School staff managing traffic at:
 - i. North Lot
 - ii. Bus Lot
 - iii. Athletic Lot
 - iv. New Vine Lot
 - v. Vine Crosswalk
 - b. Modify Green Bay/Vine/1st Traffic Signal Timings
4. Trip Reduction Plan by Highland Park High School
 - a. Reduce travel by vehicles at the campus.
5. Highland Park High School Task Force
 - a. Monitor Traffic and Parking Conditions
 - b. Adjust the plan as required
 - c. Communication with the Community