

TRANSPORTATION TECHNICAL REPORT

for

New Thornton Creek Elementary School

PREPARED FOR:

Seattle Public Schools

PREPARED BY:

heffron

transportation, inc.

6544 NE 61st Street, Seattle WA 98115

ph: (206) 523-3939 • fx: (206) 523-4949

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TABLE OF CONTENTS

1. INTRODUCTION	1
1.1. Project Description.....	1
2. BACKGROUND CONDITIONS	5
2.1. Roadway Network.....	5
2.2. Traffic Volumes	8
2.3. Traffic Operations	13
2.4. Site Access	14
2.5. Parking	15
2.6. Traffic Safety	18
2.7. Transit Facilities and Service	19
2.8. Non-Motorized Transportation Facilities.....	20
3. PROJECT IMPACTS	22
3.1. Roadway Network.....	22
3.2. Traffic Volumes	22
3.3. Traffic Operations	30
3.4. Site Access	32
3.5. Parking Demand and Supply.....	32
3.6. Athletic Field Use	34
3.7. Traffic Safety	34
3.8. Transit	34
3.9. Non-Motorized Transportation Facilities.....	34
3.10. Possible School Board Policy Changes.....	35
3.11. Short-term Impacts from Construction	36
4. FINDINGS AND RECOMMENDATIONS.....	37

APPENDIX A – LEVEL OF SERVICE DEFINITIONS

APPENDIX B – PARKING UTILIZATION STUDY DATA

LIST OF FIGURES

Figure 1. Site Location and Vicinity	2
Figure 2. Proposed Site Plan	4
Figure 3. Existing (2013) Traffic Volumes – Morning Peak Hour	9
Figure 4. Existing (2013) Traffic Volumes – Afternoon Peak Hour	10
Figure 5. Forecast 2016 Without-Project Traffic Volumes – Morning Peak Hour	11
Figure 6. Forecast 2016 Without-Project Traffic Volumes – Afternoon Peak Hour.....	12
Figure 7. Study Area for On-Street Parking Utilization Surveys	16
Figure 8. Pedestrian Network	21
Figure 9. Net New Traffic by 15-Minute Period With Staggered (by 45-minutes) Start Times	24
Figure 10. Project Trip Distribution and Assignment – Morning PM Peak Hour.....	26
Figure 11. Project Trip Distribution and Assignment – Afternoon Peak Hour	27
Figure 12. Forecast (2016) With-Project Traffic Volumes – Morning Peak Hour.....	28
Figure 13. Forecast (2016) With-Project Traffic Volumes – Afternoon Peak Hour	29

LIST OF TABLES

Table 1. Level of Service Summary – Existing (2013) and 2016-Without-Project Conditions	14
Table 2. Parking Demand Survey Results – September 2013	18
Table 3. Collision Summary (January 1, 2010 through September 3, 2013)	19
Table 4. Thornton Creek Elementary School Project – Trip Generation Estimates.....	24
Table 5. Level of Service Summary – 2016-Without- and With-Project Conditions.....	31

1. INTRODUCTION

This report presents the transportation impact analyses for the Seattle Public Schools' proposed Thornton Creek Elementary School project. The scope of analysis and approach were based on extensive past experience performing transportation impact analyses for projects throughout the City of Seattle, including numerous analyses prepared for projects by Seattle Public Schools. These analyses were prepared to support the SEPA Checklist for this project. This report documents the existing conditions in the site vicinity, presents estimates of project-related traffic, and evaluates the anticipated impacts to the surrounding transportation system including transit, parking, safety, and non-motorized facilities.

1.1. Project Description

Seattle Public Schools plans to construct a new elementary school on the Thornton Creek Elementary School property (formerly known as Stephen Decatur Elementary), which is located at 7711-43rd Avenue NE in Seattle. The following sections describe the existing school site and the proposed project to construct a new school on the site.

1.1.1. Existing School

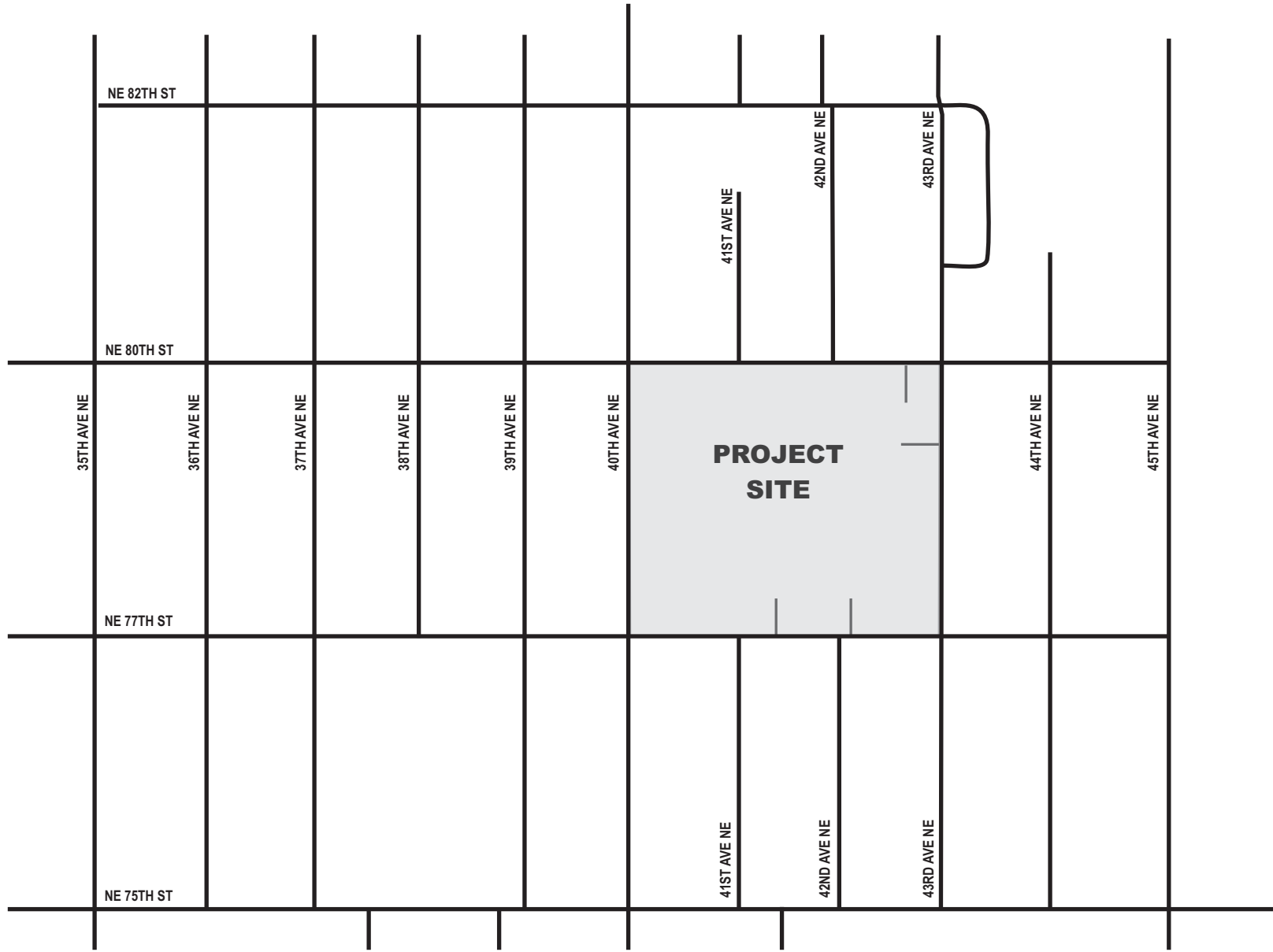
The existing school has buildings with a total of about 49,740 square feet (sf) including the main school buildings, a daycare building, and five portables. In June 2013, enrollment at Thornton Creek Elementary School was reported at 360 students¹ and 45 staff members serving pre-kindergarten through fifth grade (PK-5). The school also provides for both before- and after-school childcare. The school site is bounded by 40th Avenue NE to the west, NE 77th Street to the south, 43rd Avenue NE to the east, and NE 80th Street to the north. The project site location and vicinity are shown in Figure 1.

According to information published in *Building for Learning, Seattle Public Schools Histories, 1862-2000*,² the K-5 school was opened in September 1961 with enrollment of 326 students. Enrollment increased to 367 the following year when 6th-grade students were added. The former Shearwater Housing Project (originally constructed by the Federal Government for US Navy personnel) was preserved as an annex on the south side of the site. In 1966, five classrooms, specifically designed to accommodate team teaching, were added to the south end of the main building and enrollment increased to 477 students for the 1966–67 school year. The school operated as a regular elementary school with different types of programs (including modified Montessori and “House System” curriculums) until 1989, when it became the home of Alternative Education School #2.

The Thornton Creek Elementary School site is occupied by the existing school buildings, two small parking lots, hard-surface play areas, a playground, and athletic fields to the west. The two on-site parking lots serve some of the school-related parking demand generated by staff and parents. A gravel lot with approximately 25 spaces is located southwest of the school buildings and is accessed from NE 77th Street. It has two access driveways that operate with a one-way circulation pattern (inbound at the western driveway and outbound at the eastern driveway). A paved parking lot with 20 spaces is located at the northeast corner of the site and has two access driveways—one on NE 80th Street and one on 43rd Avenue NE. Some of the parking demand generated by school staff and parents occurs on-street surrounding the site on NE 77th Street, NE 80th Street, and 43rd Avenue NE.

¹ Source: SPS Project Manager, I. Kell, Heery, July 2013.

² <http://www.seattleschools.org/modules/groups/homepagefiles/cms/1583136/File/Departmental%20Content/history%20book/cedar-park.pdf>



**THORNTON CREEK
ELEMENTARY**

Figure 1
Site Location and Vicinity



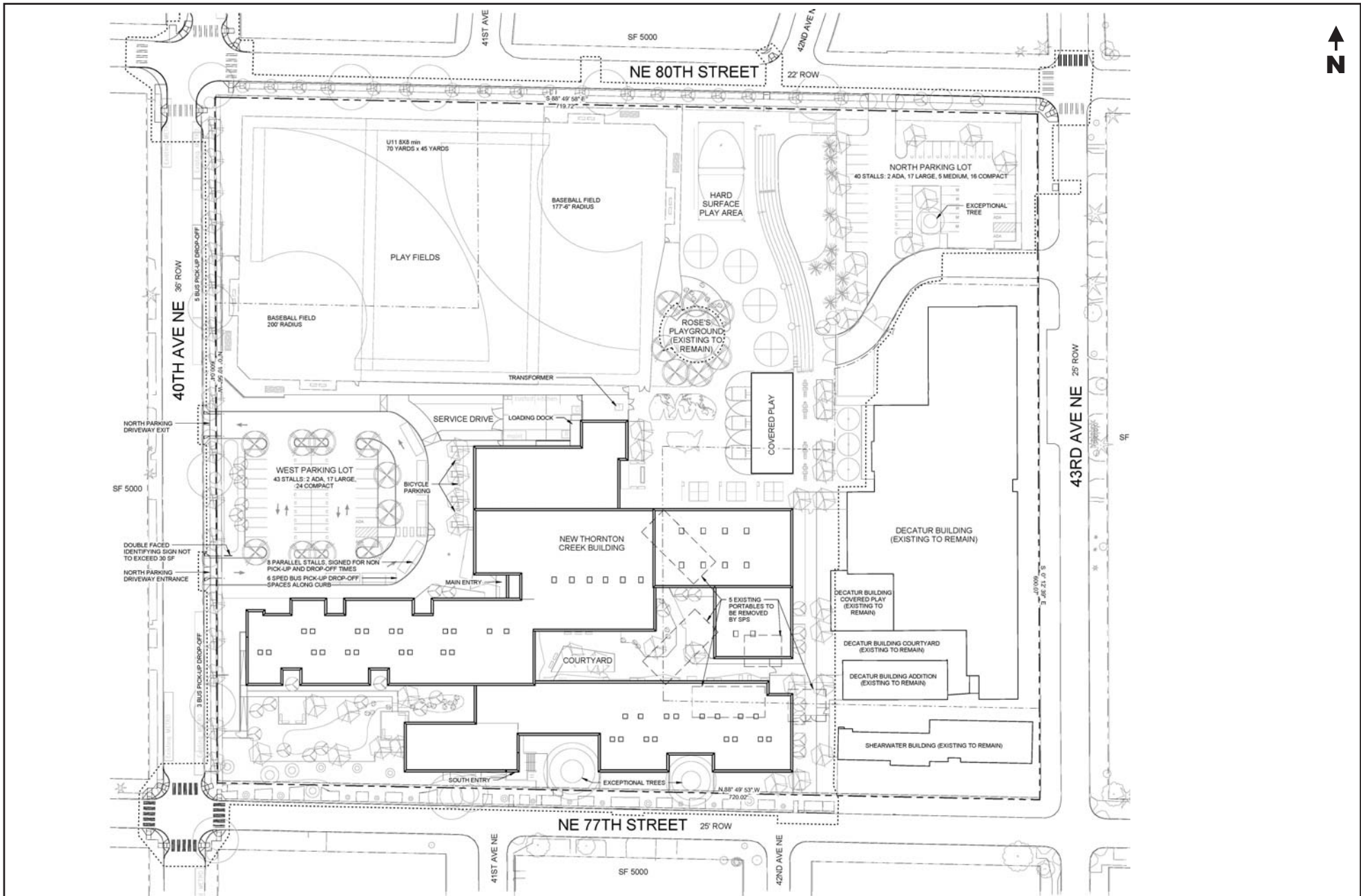
School bus load/unload occurs in two locations—along the west side of 43rd Avenue NE between NE 77th and NE 80th Streets and on the north side of NE 77th Street between about 42nd and 43rd Avenues NE. The curbside frontage along 43rd Avenue NE is signed for “School Bus Only” between 8:00 and 10:00 A.M. and between 2:00 and 4:00 P.M. The curbside frontage along the NE 77th Street is signed for “School Bus Only” between 8:00 A.M. and 4:00 P.M.

1.1.2. Proposed Site Changes

The purpose of the proposed project is to provide a new building that meets the program needs for Thornton Creek Elementary, maintains the viability of the existing Decatur Buildings to be operated as a separate smaller school, and accommodates the increasing enrollment that is occurring District-wide. Once complete, the new Thornton Creek Elementary School would continue as an alternative “expeditionary learning” choice school that primarily draws from north and northeast Seattle. The proposed new school would have an enrollment capacity of 660 students and is expected to have a total of 75 employees (62 full-time and 13 part-time). The existing Decatur Buildings would be maintained for potential future use as a separate elementary or K-8 school, for which a program has not yet been defined. Enrollment capacity for the school in the Decatur Buildings would be 250 students after the portables are removed. The District estimates the school in the Decatur building would have 22 employees. Construction is planned to occur from summer 2014 to summer 2016. Therefore, all future analyses (without and with the proposed project) in this report reflect year 2016 conditions. During construction, the existing Thornton Creek Elementary would remain operational.

The new Thornton Creek Elementary School would be located on the southwest portion of the 4.2 acre property. The new building (roughly 92,500 square feet (sf)) would be constructed west of and adjacent to the existing Decatur Buildings. The new school would include a covered play area, commons plaza, and a hard surface play area. The existing ball field in the northwest corner of the site will be rebuilt to accommodate two baseball/softball fields and one youth soccer field. The two baseball/softball fields would be oriented to allow both fields to be used at the same time, but neither baseball/softball field could be used during soccer. The proposed new Thornton Creek Elementary would include a new parking lot with 43 spaces and an on-site load/unload area for six Special Education (SPED) buses (or eight parking spaces for evenings) as well as a service drive and loading dock. Access to the parking, on-site SPED bus load/unload area, and the service/loading dock area is proposed from two one-way driveways on 40th Avenue NE. School bus load/unload zones for eight full-size buses are proposed along the site frontage of 40th Avenue NE—three buses are expected to stage south of the inbound parking lot driveway and five buses are expected to stage north of the outbound parking lot driveway. Parent-vehicle load/unload zones are planned along the south side of NE 80th Street and the north side of NE 77th Street adjacent to the school. For the Decatur Building, most of the existing facilities would be retained; however, the four portables on the site and the small gravel parking lot on the southwest side of the site would be removed. The project would reconfigure and expand the northeast parking lot to provide 40 spaces for the Decatur Buildings. The access driveway on NE 80th Street would be relocated westward; the access driveway on 43rd Avenue NE would be retained in its existing location. School bus load/unload is expected to remain on the west side of 43rd Avenue NE; parent-vehicle load/unload is expected to occur along the north side of NE 77th Street just west of 43rd Avenue NE.

As part of the project, frontage improvements are proposed along NE 80th Street that would consist of new curb and gutter, a planter strip, and a sidewalk. Parallel on-street parking is proposed along the south side of NE 80th Street adjacent to the school. Curb bulbs are proposed on all four corners of the 40th Avenue NE intersections with NE 80th and NE 77th Streets. The project would also construct a 15-foot wide shared-use sidewalk along the site frontage of 40th Avenue NE. No changes to the frontage along NE 77th Street or 43rd Avenue NE are proposed. The proposed site plan showing both schools and the planned frontage improvements is depicted in Figure 2.



Source: Mahlum Architects, December 20, 2013.

THORNTON CREEK ELEMENTARY

Figure 2
Proposed Site Plan

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2. BACKGROUND CONDITIONS

This section of the report presents the existing and future conditions without the proposed project. The impacts of the proposed project were evaluated against these base conditions. Year 2016 was selected as the future horizon year for the analyses, because this is the year the new school is scheduled to be completed and the site could be occupied with up to 660 students at the new Thornton Creek Elementary and up to 250 students in a separate school in the Decatur Buildings. For comparison, and to provide an analysis of potential new traffic and parking impacts, year 2016 without-project conditions assume the existing Thornton Creek Elementary School would continue operating as is with its existing level of enrollment (about 360 students). The following sections describe the existing roadway network, traffic volumes, traffic operations (in terms of levels of service), traffic safety, transit facilities, non-motorized facilities, and parking.

The selection of the study area intersections was developed based on the travel routes expected to be used by parents, buses, and staff to access and egress the site area. The following eight intersections were identified for analysis for both the morning and afternoon peak hours. Site access was also analyzed for conditions with the project. All study area intersections are currently unsignalized.

- NE 80th Street / 35th Avenue NE
- NE 80th Street / 40th Avenue NE
- NE 77th Street / 40th Avenue NE
- NE 75th Street / 40th Avenue NE
- NE 80th Street / 43rd Avenue NE
- NE 77th Street / 43rd Avenue NE
- NE 75th Street / 43rd Avenue NE
- NE 75th Street / 45th Avenue NE

2.1. Roadway Network

As described previously, the school site is bounded by NE 80th Street on the north, 43rd Avenue NE on the east, 40th Avenue NE on the west, and NE 77th Street on the south. The following provides descriptions of the key roadways near the site. Within the City of Seattle, the speed limit on arterials is 30 mph, unless otherwise posted; the speed limit on other local access residential streets is 25 mph.

NE 75th Street is a two-lane, east-west arterial that provides access between Roosevelt Way NE and 55th Avenue NE. Between 55th and 35th Avenues NE, it is designated as a Collector Arterial;³ between 35th and 25th Avenues NE (to the west), it is designated as a Minor Arterial; west of 25th Avenue NE, it is designated as a Principal Arterial. Near the site, both sides of the street have curbs, gutters, and sidewalks separated by a narrow landscape strip and parking is allowed on both sides. Its intersection with 40th Avenue NE is all-way-stop controlled; all crosswalks are marked and curb ramps are paved. At its intersection with 43rd Avenue NE, pedestrian flags are provided to facilitate crossings. The City recently completed a channelization project southwest of the site area between 15th and 35th Avenues NE aimed at reducing vehicle speeds and improving pedestrian safety. That project restriped the roadway to provide one lane in each direction plus a center two-way left turn lane. Bicycle lanes were added in both directions.

NE 77th Street is a two-lane, east-west roadway that provides access in the site vicinity between 31st and 45th Avenues NE. Near the site, there are curbs on both sides of the street with intermittent segments of sidewalk. Its approaches to 40th Avenue NE are stop-sign controlled; the other intersections near the site are uncontrolled. There are marked and signed crosswalks at the intersections with 40th Avenue NE (crossing the north leg) and 43rd Avenue NE (crossing the north and

³ Source: City of Seattle, Arterial Classification Map (2003).

west legs). On-street parallel parking occurs on both sides of the street. Due to its width, the travel way is effectively restricted to one lane for both directions of travel when on-street parking occurs.

NE 80th Street is a two-lane, east-west roadway that provides access between 30th and 45th Avenues NE. East of 40th Avenue NE, the north side of the street has curb, gutter, and a sidewalk, although there is no sidewalk between 43rd and 42nd Avenues NE. The south side of the street is unimproved with no curb or sidewalk. It has a gravel/grass shoulder of variable widths and segments of pavement that function as an informal parking areas near the intersection with 43rd Avenue NE. Parking occurs along both sides of the street—mostly parallel on the north side and a mixture of parallel and angle parking on the south side. Its approaches to 40th Avenue NE are stop-sign controlled; its intersection with 43rd Avenue NE is controlled with a traffic circle. At the intersection with 43rd Avenue NE, there are two marked crosswalks (crossing the west and south legs); at the intersection with 40th Avenue NE, there is one marked crosswalk (crossing the south leg). The street has no sidewalks or shoulders between 36th and 40th Avenues NE.

40th Avenue NE is a two-lane, north-south Collector Arterial providing access between Sandpoint Way NE to the south near Children’s Hospital and NE 85th Street to the north. Between NE 77th and NE 80th Street, there are sidewalks, curbs, and gutters on both sides. South of NE 77th Street, there are intermittent missing segments of sidewalk; north of NE 80th Street, there are no curbs, but open gravel shoulders. Parallel on-street parking occurs along both sides of the street. The roadway alignment is slightly offset at its intersections with NE 75th and NE 80th Streets. As described above, there are marked and signed crosswalks at NE 77th Street (across the north leg) and NE 80th Street (across the south leg). Its intersection with NE 75th Street is all-way-stop controlled and there are marked crosswalks on all four legs.

41st Avenue NE is a two-lane, north-south local access roadway that connects between NE 75th and 77th Streets south of the site; it also extends one block to the north from NE 80th Street ending before NE 82nd Street. The street has curbs and gutters on both sides; the southern segment has sidewalk on the east side only, while the northern segment has sidewalks on both sides. Its approach to NE 75th Street is controlled with a stop sign; other intersections near the school are uncontrolled. Parking occurs on both sides of the street. Due to its width and on-street parking, the travel way is effectively restricted to one lane for both directions of travel, when cars are parked on both sides.

42nd Avenue NE is a two-lane, north-south local access roadway that connects between NE 75th and 77th Streets south of the site and between NE 80th and 85th Streets north of the site. The street has curbs and gutters on both sides; the southern segment has sidewalk on the east side only (except for the southernmost 65 feet), while the northern segment has sidewalks on both sides. Its approach to NE 75th Street is controlled with a stop sign; other intersections near the school are uncontrolled. Parking occurs on both sides of the street. Due to its width and on-street parking, the travel way is effectively restricted to one lane for both directions of travel, when cars are parked on both sides.

43rd Avenue NE is a two-lane, north-south local access roadway that connects between NE 75th and 87th Streets. Both sides of the street have curbs and gutters. Near the school site, there is sidewalk on the west side of the street; sidewalks are on both sides of the street north of the school. Parking occurs along both sides of the street. Parking is restricted along the school frontage between NE 77th and 80th Streets to provide for school bus loading/unloading in the mornings and afternoons. Due to its width and on-street parking, the travel way is effectively restricted to one lane for both directions of travel when vehicles are parked on both sides. Its approaches to NE 75th Street are controlled with stop signs, its intersection with NE 80th Street is controlled with a traffic circle, and other intersections near the school are uncontrolled.

45th Avenue NE is a two-lane, north-south local access roadway that connects NE 55th Street to the south of the school and dead ends north of NE 86th Street to the north. Near the school, there are curbs and gutters on both sides of the street with sidewalk along the west side. North of NE 80th Street, the curbs and sidewalk end. Its approaches to NE 75th Street are controlled with stop signs; other intersections are uncontrolled.

35th Avenue NE is a two-lane, north-south Minor Arterial that provides access between about NE 45th Street to the south and Lake City Way to the north. The roadway serves as the primary commercial artery of the Wedgwood neighborhood in the area surrounding Thornton Creek Elementary School. Parking occurs on both sides of the street, but is prohibited to provide an additional travel lane for peak direction traffic (4:00 to 6:00 P.M. northbound and 7:00 to 9:00 A.M. southbound). There are curbs, gutters, and sidewalks on both sides of the street. In the site vicinity, the street is marked with sharrows indicating that motorists should share the lane with bicyclists. A “sharrow” is a shared-lane pavement marking that is placed in the roadway lane to highlight the shared space; however, unlike a bicycle lane it does not delineate a particular part of the roadway that a bicyclist should use. Its intersection with NE 75th Street is signalized with marked crosswalks and pedestrian signals.

Several planning documents and efforts were reviewed to determine what transportation improvements might be made near Thornton Creek Elementary School by 2016 when the new school is scheduled to open. These documents included: the *Wedgwood Vision Plan*⁴ (the neighborhood plan encompassing the area surrounding Thornton Creek Elementary School); information from the *35th Avenue Neighborhood Planning effort*;⁵ the City of Seattle’s *Adopted 2013-2018 Capital Improvement Program*⁶ and *2014-2019 Proposed Capital Improvement Program*;⁷ as well as the Mayor’s *School Road Safety Initiative*.⁸ The following describes each and the elements pertinent to the Thornton Creek Elementary School area.

The *Wedgwood Vision Plan* does not have specific recommendations for the roadways immediately adjacent to the Thornton Creek Elementary School, but does include recommendations for the primary arterials surrounding the study area including 35th Avenue NE and NE 75th Street. Recommendations are to provide wider sidewalks; filling in missing gaps in the network along NE 80th Street and NE 77th Street; safer crosswalks; and improved safety at key intersections of arterials including NE 80th and NE 75th and 35th Avenue NE. Additionally, the plan calls for expanding and improving designated bike routes throughout the neighborhood. The *35th Avenue Neighborhood Planning effort* was designed as a community-driven process to establish neighborhood-specific design guidelines that direct new development and create conditions necessary for a better 35th Avenue NE business district.

The *Adopted 2013-2018 Capital Improvement Program* includes a pedestrian crosswalk improvement at the NE 80th Street/35th Avenue NE intersection within the “Small Projects” portion of the 2013 Neighborhood Projects Funds. Similarly, the *2014-2019 Proposed Capital Improvement Program* includes a “small project” with in the 2014 Neighborhood Projects element to construct a segment of sidewalk at 7514–40th Avenue NE.

Mayor Mike McGinn proposed new investments for road safety around Seattle-area schools as part of his 2014 budget through the *School Road Safety Initiative* launched in 2013. These investments would be funded by \$14.8 million in revenue collected through the City’s school zone speed cameras, reinvesting funds to improvements including new sidewalks, improved street crossings, and traffic

⁴ Makers Architecture and Urban design, July 2010, http://www.wedgwoodcc.org/vision/WVP_vision_plan_0710_sm.pdf

⁵ http://35thneighborhoodplan.blogspot.com/p/about_10.html

⁶ City of Seattle, 2013.

⁷ City of Seattle, 2013.

⁸ City of Seattle, September 4, 2013.

calming. The current project list includes funding in 2014 for crossing improvements, sidewalks, and speed cameras near Thornton Creek Elementary School.

Finally, SDOT is planning two improvements in site vicinity.⁹ It will construct a new segment of sidewalk along NE 77th Street between 39th and 40th Avenues NE on either the north or south side of the street, where no sidewalks currently exist. SDOT has also determined based on recent data collected, that existing speeds on NE 80th Street near the school are excessive. As a result, SDOT plans to implement speed reduction measures along NE 80th Street. At the time of this report, the exact type and locations of the measures were still being determined.

No projects were identified that would affect the roadway network or intersection capacity within the study area. Therefore, the roadways and intersections were assumed to remain unchanged by year 2016 for this analysis.

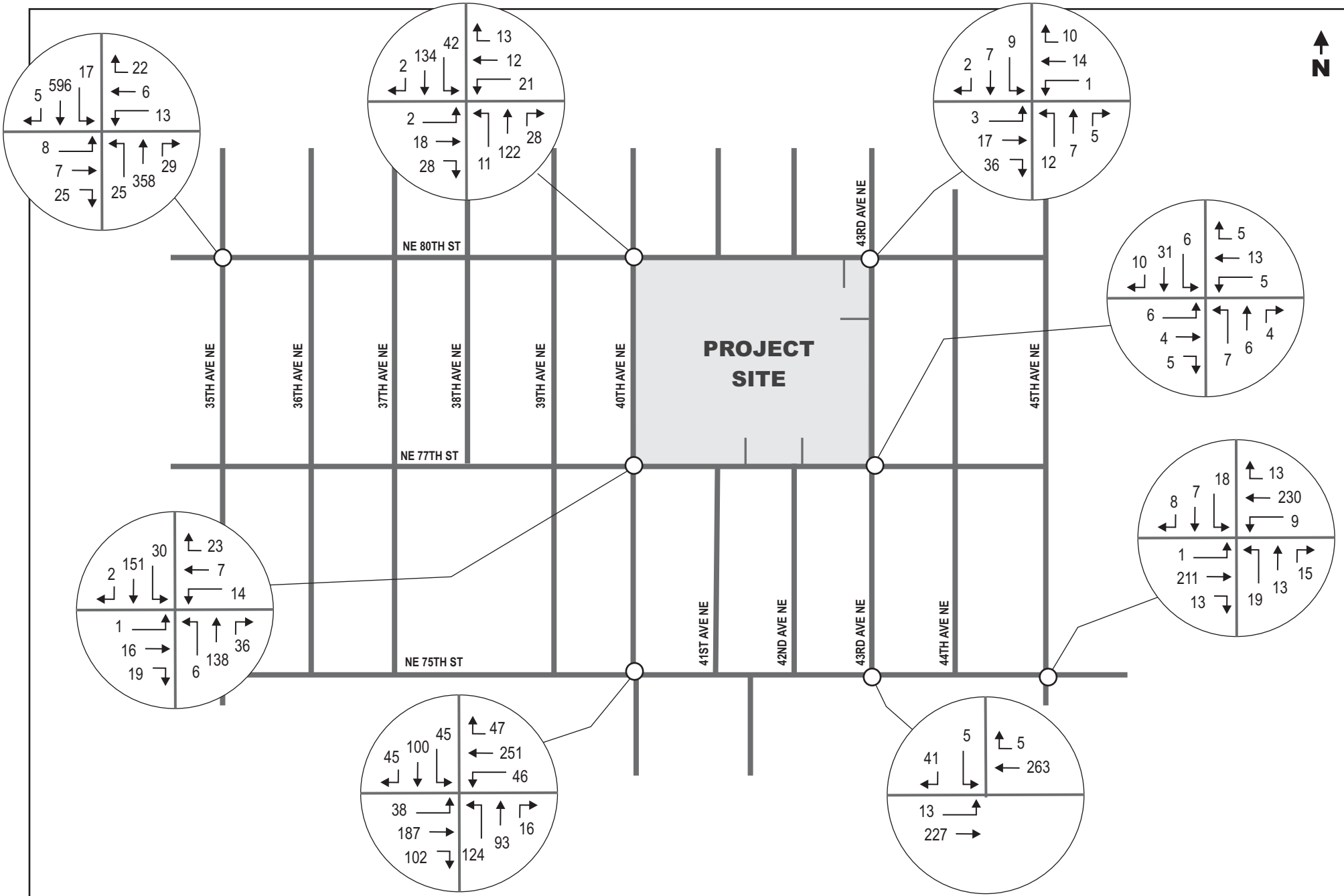
2.2. Traffic Volumes

To evaluate the potential traffic conditions near the site during the morning arrival and afternoon dismissal times for the new Thornton Creek Elementary School, new peak period turning movement traffic counts were performed at the identified study-area intersections and site access driveways. Primary access routes to and from the proposed school by staff, parent vehicles, and school buses are expected to include these intersections.

The existing Thornton Creek Elementary School currently starts at 9:30 A.M. and is dismissed at 3:35 P.M. The District indicated that the new Thornton Creek Elementary School would likely have the same start and dismissal times. The school that could occupy the Decatur Buildings on the site would have staggered start times (by at least 45 minutes) to reduce the potential traffic and parking impacts to the local neighborhood. Therefore, it was assumed that the school program in the Decatur Buildings would start at 8:45 A.M. and be dismissed at about 2:50 P.M. To capture the existing traffic conditions during these hours, peak period traffic counts were performed from 8:00 to 10:00 A.M. and from 2:30 to 4:30 P.M. on Wednesday, June 12, 2013. During these periods, the highest existing hourly volumes in the morning mostly occurred from 8:45 to 9:45 A.M.; in the afternoon the highest hourly volumes occurred beginning at either 3:00 or 3:15 P.M. As will be described later in this report, the combined traffic from the two schools is expected to result in peak hours of 8:30 to 9:30 A.M. and 3:00 to 4:00 P.M. The morning and afternoon existing peak hour traffic volumes are shown on Figure 3 and Figure 4, respectively.

The new Thornton Creek Elementary School is expected to be opened and occupied in the fall of 2016. To estimate year 2016 background traffic for the study area intersections, a compound annual growth rate was selected and applied to the existing (2013) traffic volumes. The growth rate was determined after review of available recent historical traffic count data collected by the City of Seattle on NE 75th Street (east of 43rd Avenue NE) and on 35th Avenue NE (north of NE 75th Street). Review of peak hour volumes indicate that traffic volumes have remained essentially unchanged (or have slightly declined in some cases) in the area for the past two to six years. However, a 1% compound annual growth rate was applied to the existing traffic volumes to estimate 2016 traffic volumes without the project during the morning and afternoon peak periods. Although traffic volumes have been essentially unchanged over the past several years, this growth rate was applied to account for potential new growth that may occur in the area as the economy continues to recover. This growth rate is consistent with rates used for traffic analyses of other developments throughout Seattle. The 2016-without-project morning and afternoon peak hour traffic volumes are shown on Figure 5 and Figure 6, respectively.

⁹ Personal communication, Brian Dougherty, SDOT, December 3, 2013.



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Figure 3
Existing (2013) Traffic Volumes
Morning Peak Hour



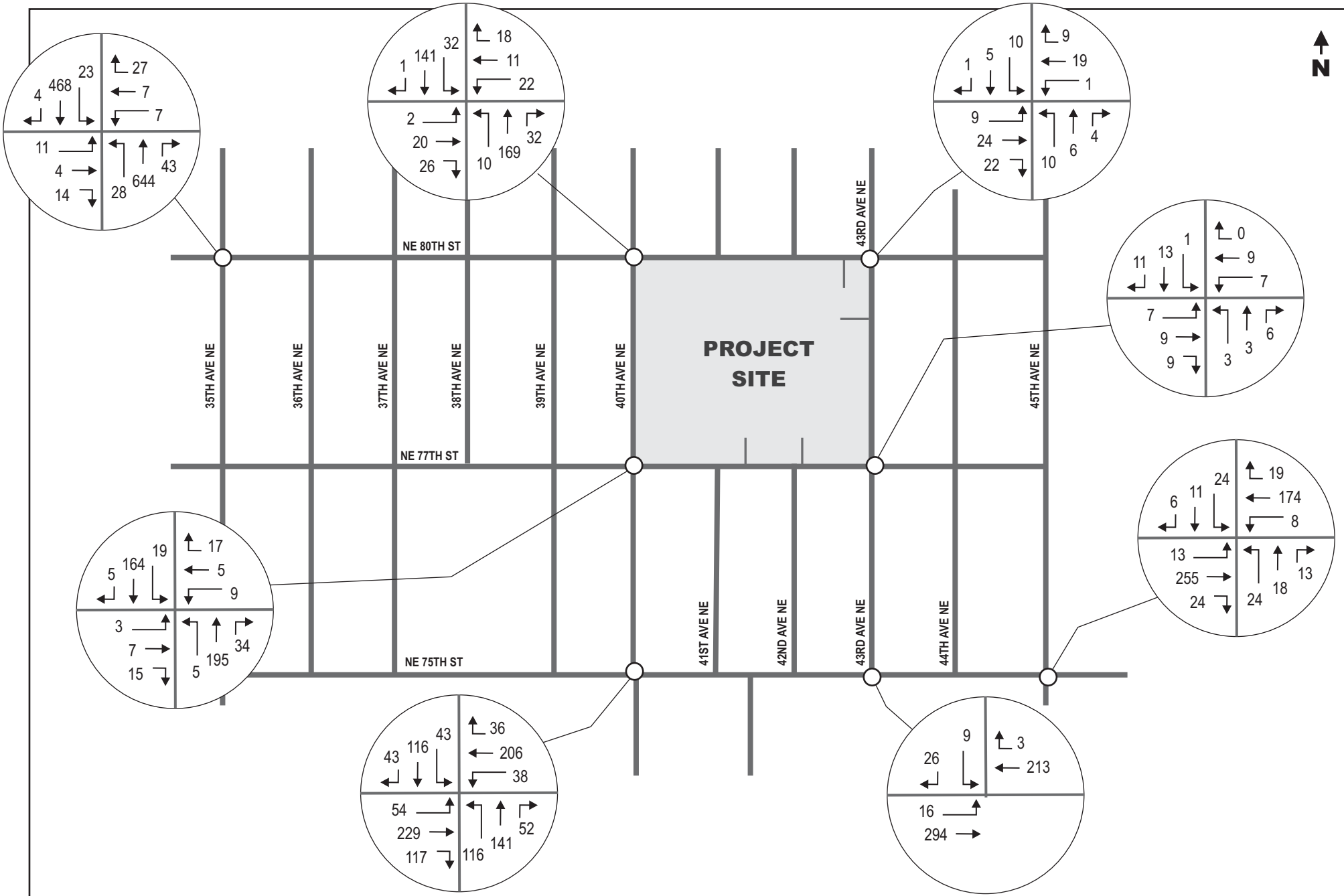
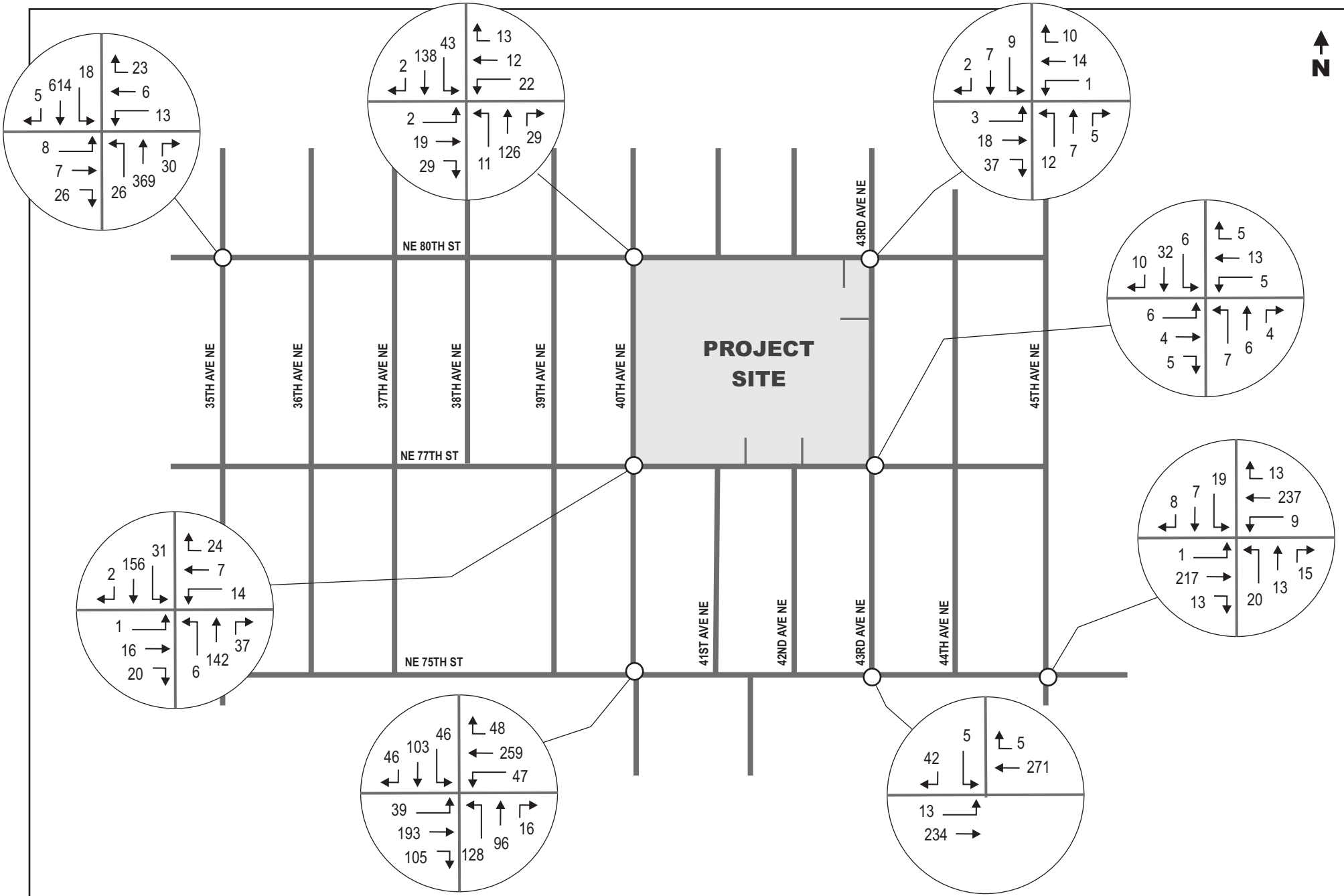
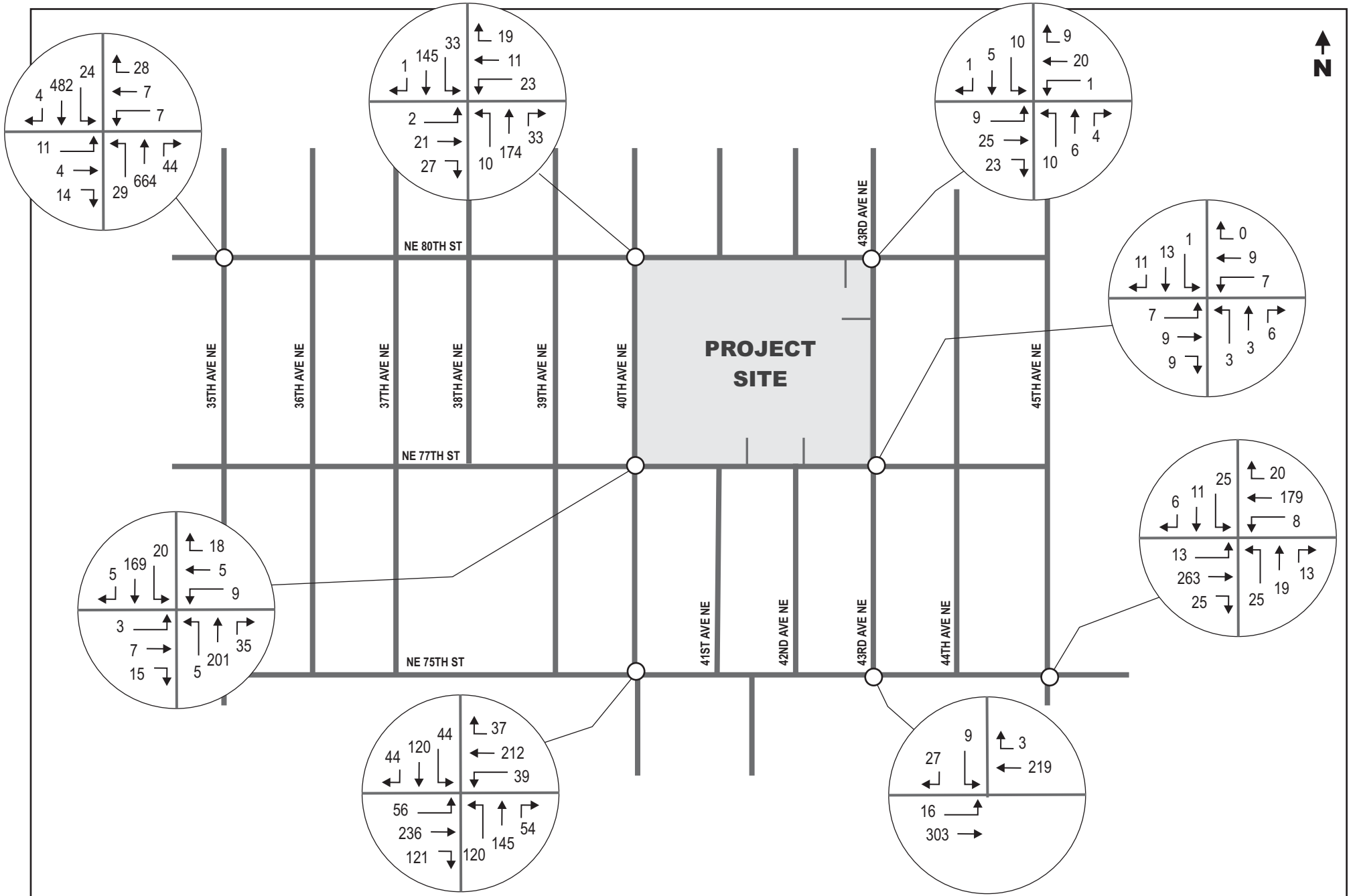


Figure 4
Existing (2013) Traffic Volumes
Afternoon Peak Hour



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Figure 5
Forecast 2016 Without-Project Traffic Volumes
Morning Peak Hour



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Figure 6
Forecast 2016 Without-Project Traffic Volumes
Afternoon Peak Hour

2.3. Traffic Operations

Traffic operations analyses were performed for the eight study-area intersections. Traffic operations are evaluated using level of service (LOS) with six letter designations, “A” through “F.” LOS A is the best and represents good traffic operations with little or no delay to motorists. LOS F is the worst and indicates poor traffic operations with long delays. The level of service definitions and thresholds are provided in Appendix A. LOS D or better is acceptable to the City of Seattle.

Levels of service were determined using procedures in the *Highway Capacity Manual 2010*.¹⁰ Delay is calculated using complex equations that consider a number of variables. For example, at unsignalized intersections, delay is determined for vehicles that must stop or yield for oncoming traffic. That delay is related to the availability of gaps in the main street's traffic flow and the ability of a driver to enter or pass through those gaps. All level of service calculations were performed using the *Synchro 8.0* traffic operations analysis software. The models reflect current intersection geometries and levels of service were reported using the *HCM 2010* modules of the *Synchro* software.

Table 1 summarizes existing (2013) and forecast 2016 levels of service without the proposed project for both the morning and afternoon peak hour conditions. As shown, the all-way-stop controlled intersection at NE 75th Street/40th Avenue NE is currently operating at LOS F during the morning peak hour and LOS E during the afternoon peak hour. New 72-hour traffic counts were performed (December 3 to 5, 2013) on NE 75th Street and on 40th Avenue NE for use in reviewing traffic signal warrants published in the *Manual on Uniform Traffic Control Devices (MUTCD)*¹¹ Based on the existing volumes, the intersection currently meets Warrant 2 (Four-Hour Volume) and Warrant 3 (Peak-Hour Volume) for signalization. Warrant 1 (Eight-Hour Volume) is not met, but the minimum volume thresholds are met for seven out of eight hours. An agency, such as SDOT, can elect to install a traffic signal based on any one or more of the nine warrants; but may also choose to keep an intersection unsignalized based on other preferences.

The analysis also indicates that eastbound movements from NE 80th Street at 40th Avenue NE operate at LOS E. The assumed growth in background traffic would add delay to both the study-area intersections by 2016 without the project. All movements at the remaining study area intersections currently operate at LOS D or better and are expected to continue at those levels in 2016 without the Thornton Creek Elementary School project.

It should be noted that based on observations performed at the existing school during morning arrival and afternoon dismissal, parent-vehicles and school buses mix along 43rd Avenue NE and NE 77th Street. Parent-vehicles arrive from all directions and parking occurs along both sides of NE 77th Street, both sides of NE 80th Street, and portions of 41st, 42nd, and 43rd Avenues NE south of NE 77th Streets. These activities resulted in congested conditions along the study area roadways that surround the site lasting for about 25 minutes in the morning (9:15 to 9:40 A.M.) and about 30 minutes in the afternoon (3:25 to 3:55 P.M.).

¹⁰ HCM 2010, Transportation Research Board, 2010.

¹¹ US Department of Transportation, Federal Highway Administration, 2009.

Table 1. Level of Service Summary – Existing (2013) and 2016-Without-Project Conditions

Intersections	Morning Peak Hour				Afternoon Peak Hour			
	Existing (2013)		2016 w/o project		Existing (2013)		2016 w/o project	
Two-Way-Stop Controlled	LOS ¹	Delay ²	LOS	Delay	LOS	Delay	LOS	Delay
NE 80 th Street / 35 th Avenue NE (overall)	A	2.5	A	2.6	A	2.7	A	2.9
Northbound Left Turn	A	9.1	A	9.2	A	8.6	A	8.7
Eastbound Movements	C	23.1	C	24.2	E	35.1	E	38.4
Westbound Movements	C	24.9	D	26.2	D	29.9	D	32.3
Southbound Left Turn	A	9.3	A	8.4	A	9.4	A	9.5
NE 80 th Street / 40 th Avenue NE (overall)	A	4.6	A	4.7	A	3.7	A	3.9
Northbound Left Turn	A	7.8	A	7.8	A	7.7	A	7.7
Eastbound Movements	B	13.1	B	13.3	B	12.5	B	12.7
Westbound Movements	C	16.1	C	16.7	B	14.4	B	14.7
Southbound Left Turn	A	7.9	A	7.9	A	7.9	A	7.9
NE 77 th Street / 40 th Avenue NE (overall)	A	3.5	A	3.5	A	2.4	A	2.4
Northbound Left Turn	A	7.8	A	7.8	A	7.8	A	7.8
Eastbound Movements	B	13.4	B	13.6	B	12.2	B	12.3
Westbound Movements	B	14.4	B	14.7	B	13.0	B	13.1
Southbound Left Turn	A	8.0	A	8.0	A	7.9	A	7.9
NE 75 th Street / 43 rd Avenue NE (overall)	A	1.2	A	1.2	A	1.2	A	1.2
Eastbound Left Turn	A	8.2	A	8.3	A	7.8	A	7.9
Southbound Turns	B	12.1	B	12.3	B	11.6	B	11.7
NE 75 th Street / 45 th Avenue NE (overall)	A	2.7	A	2.8	A	3.0	A	3.1
Northbound Left Turn	C	16.9	C	17.4	C	15.6	C	16.0
Eastbound Movements	A	8.1	A	8.1	A	7.8	A	7.8
Westbound Movements	A	8.1	A	8.1	A	8.1	A	8.1
Southbound Left Turn	C	17.4	C	18.0	C	16.0	C	16.4
All-Way-Stop / Uncontrolled	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
NE 75 th Street / 40 th Avenue NE (overall)	F	53.2	F	57.3	E	44.6	E	45.9
NE 77 th Street / 43 rd Avenue NE (overall) ³	A	7.7	A	7.7	A	7.4	A	7.4
Traffic-Circle Controlled	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
NE 80 th Street / 43 rd Avenue NE (overall) ⁴	A	4.5	A	4.5	A	4.1	A	4.2

Source: Heffron Transportation, Inc., November 2013.

1. Level of service.
2. Average seconds of delay per vehicle.
3. Intersection is uncontrolled. Analysis assumes all-way-stop control for evaluation of level of service.
4. Intersection is controlled by a traffic circle. Analysis assumes roundabout control for evaluation of level of service.

2.4. Site Access

The existing site has a total of four vehicular access driveways serving the on-site parking lots—one on NE 80th Street, one on 43rd Avenue NE, and two on NE 77th Street. The first two driveways serve a paved parking lot with 20 parking spaces; the latter driveways provide one-way circulation to a 25-space gravel lot southwest of the school buildings. This gravel lot would be eliminated by the proposed project.

2.5. Parking

On-street and off-street parking at and around the existing Thornton Creek Elementary School was surveyed to determine the existing parking supply and parking demand. The following sections describe the on-street and off-street parking supply as well as the current parking demand and utilization rates.

2.5.1. On-Street Parking Utilization

A detailed on-street parking study was performed per the methodology outlined in the City of Seattle's Client Assistance Memorandum (CAM) #117. The City requires use of this methodology to document the number and type of on-street parking spaces that are available to neighborhood residents or other users in the area. This analysis was completed to determine the existing parking supply and how much of that supply is currently utilized at different times of the day. This information was then used to estimate how parking utilization could be affected by new parking demand generated by the proposed new Thornton Creek Elementary School. It should be noted that almost all of the residences within the study area have some off-street parking capacity such as driveways and/or garages. The majority of residents actively use these spaces for vehicle parking; however, some also use on-street parking.

The study area for the on-street parking utilization analysis included all roadways within an 800-foot *walking* distance from the school site corners. The 800-foot walking distance results in a study area that extends west to 38th Avenue NE, north just beyond NE 82nd Street, south to NE 75th Street, and east to 45th Avenue NE. Details about parking supply and demand are provided in the following sections.

Existing On-Street Parking Supply

Within the study area, many of the streets are 24 feet wide with curb and gutter. Along these streets parking supply was considered to exist on both sides of the street. There are a few streets that do not have curbs. In these locations, the potential on-street parking supply was estimated by assuming areas with gravel or paved shoulders that are seven feet or greater in width could be used for parking. Although some on-street parking may occur within part of the travel way or on narrower grass shoulders on some roadway segments (as occurs on many City of Seattle residential roadways), field observations indicated that vehicles were not usually parked in those areas.

The study area was separated into individual block faces. A block face consists of one side of a street between two cross-streets. For example, the west side of 40th Avenue NE between NE 82nd Street and NE 80th Street is one block face (identified as block face 'AT'). The study area and the designated block faces are shown on Figure 7.

Each block face was measured and analyzed to determine the number of available on-street parking spaces. First, common street features—such as driveways, fire hydrants, and special parking zones—were noted and certain distances adjacent to the street features were noted. No on-street parking capacity was assumed within 30 feet of a signalized or marked intersection, within 20 feet of an uncontrolled intersection, within 15 feet on either side of a fire hydrant, or within 5 feet on either side of a driveway or alley. The remaining unobstructed lengths of street between street features were converted to legal on-street parking spaces using values in the City's CAM #117.

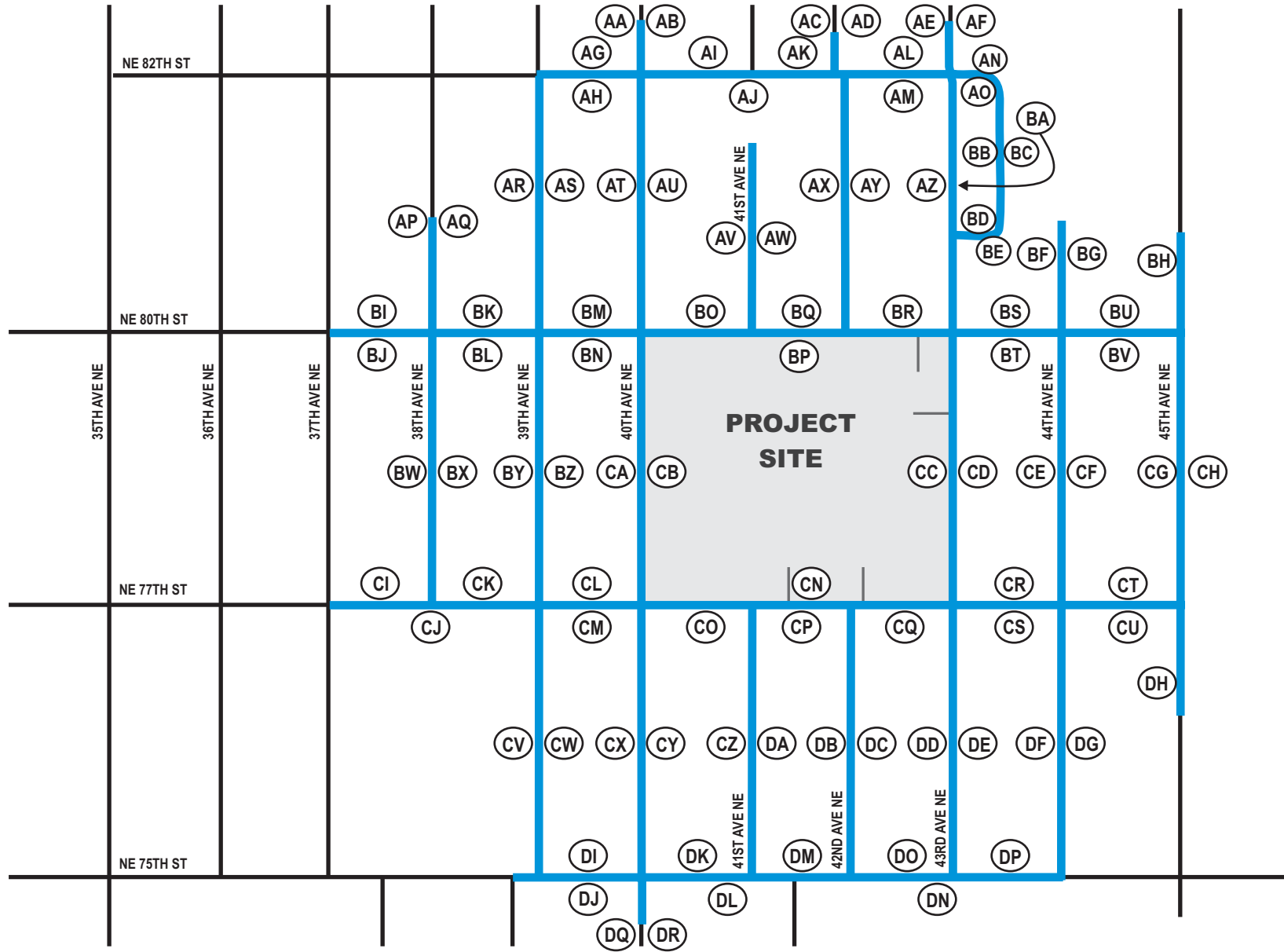


Figure 7
Study Area for On-Street Parking
Utilization Surveys

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The parking supply survey determined that there are a total of 934 on-street parking spaces within the defined study area for the Thornton Creek Elementary School site. The majority of these spaces are used as parallel parking with no time restrictions. As described previously, there are signed school-bus load/unload zones along the west side of 43rd Avenue NE between NE 77th and NE 80th Streets and on the north side of NE 77th Street between about 42nd and 43rd Avenues NE. The curbside frontage along 43rd Avenue NE is signed for “School Bus Only” between 8:00 and 10:00 A.M. and between 2:00 and 4:00 P.M. The curbside frontage along the NE 77th Street is signed for “School Bus Only” between 8:00 A.M. and 4:00 P.M. These curb-side areas are available for parking during other times.

Existing On-Street Parking Demand

Existing parking demand counts within the study area were performed in September 2013. Demand counts were performed at three different times: midday (between 10:00 and 11:00 A.M.) to reflect conditions when school-related parking demand would occur; weekday evenings (between 8:30 and 9:30 P.M.) to reflect conditions when school events could occur; and weekends (mid-day between 11:00 A.M. to 2:00 P.M.) to document parking conditions when athletic field use could be highest. The weekday counts were performed on two separate days—Tuesday, September 17th and Wednesday, September 18th, 2013. The weekend counts were performed on Sunday, September 22nd and Saturday, September 28th, 2013. The count results for each day were compiled and averaged.

The results of the parking demand surveys are summarized in Table 2. Detailed summaries of the on-street parking demand for each block face for all counts are included in the Appendix. On-street parking utilization was calculated using the methodology described in CAM #117. Parking utilization is calculated as the number of vehicles parked on street divided by the number of legal on-street parking spaces within the study area or on a specific block face. The study area utilization totals are also summarized in Table 2. As shown, on-street parking in the study area during midday on weekdays was observed to be 20% utilized (an average of 182 vehicles parked in 924 spaces). In the evening, the utilization averaged 31% (287 vehicles parked in 934 spaces); on the weekend days the utilization averaged 24% (225 vehicles parked in 934 spaces).

Table 2. Parking Demand Survey Results – September 2013

Time Period Surveyed	Parking Supply	Total Vehicles Parked	% Utilization
<i>Weekdays Mid Morning (10:00 to 11:00 A.M.)</i>			
Tuesday, September 17, 2013	924 ^a	186	20%
Wednesday, September 18, 2013	924 ^a	177	19%
<i>Average Mid-Morning</i>	<i>924</i>	<i>182</i>	<i>20%</i>
<i>Weekday Evenings (8:30 to 9:30 P.M.)</i>			
Tuesday, September 17, 2013	934	288	31%
Wednesday, September 18, 2013	934	286	31%
<i>Average Evening</i>	<i>934</i>	<i>287</i>	<i>31%</i>
<i>Weekend Days – Mid-Day (11:00 A.M. to 2:00 P.M.)</i>			
Sunday, September 22, 2013	934	229	25%
Saturday, September 28, 2013	934	220	24%
<i>Average Weekend</i>	<i>934</i>	<i>225</i>	<i>24%</i>

Source: Heffron Transportation, Inc., September 2013.

a. Ten on-street spaces are restricted between the hours of 8:00 A.M. – 4:00 P.M. for school buses only and are not available for parking.

2.5.2. On-Site Parking

As described previously, there are two existing off-street parking lots on the school site (one with 20 spaces at the northeast corner and one with about 25 spaces southwest of the existing school building). Parking demand counts were performed within these lots midday (between 11:00 and 1:00 P.M.) on Tuesday, October 1st and Thursday, October 3rd, 2013. The counts found 16 vehicles in the northeast lot and between 15 and 21 vehicles in the southwest lot for a total on-site demand that ranged from 31 to 37 vehicles. It is noted that some staff and parent volunteer parking demand generated by the school on weekdays occurs on-street near the school.

2.6. Traffic Safety

Collision data for the intersections and roadways segments surrounding the project site were obtained from the City of Seattle Department of Transportation (SDOT). The City of Seattle data reflecting the period between January 1, 2010 and September 3, 2013 (3.7 years) are summarized in Table 3. The data were examined to determine if there are any unusual traffic safety conditions that could impact or be impacted by the proposed project.

There were very few collisions at the study area intersections reported during the 3.7-year time period. None of the intersection or roadway segment collisions involved fatalities. These data do not indicate any unusual traffic safety conditions.

Table 3. Collision Summary (January 1, 2010 through September 3, 2013)

Intersection	Rear-End	Side-Swipe	Left Turn	Right Angle	Ped / Cycle	Other	Total for 3.7 Years	Average/Year
NE 75 th St / 40 th Ave NE	0	0	0	2	0	0	2	0.5
NE 75 th St / 43 rd Ave NE	0	0	0	0	0	0	0	0.0
NE 75 th St / 45 th Ave NE	0	0	0	1	0	0	1	0.3
NE 77 th St / 40 th Ave NE	0	0	0	0	0	0	0	0.0
NE 77 th St / 43 rd Ave NE	0	0	0	0	0	0	0	0.0
NE 80 th St / 35 th Ave NE	0	0	0	0	0	1	1	0.3
NE 80 th St / 40 th Ave NE	0	0	0	0	0	0	0	0.0
NE 80 th St / 43 rd Ave NE	0	0	0	0	0	0	0	0.0
Roadway Segments	Rear-End	Side-Swipe	Left Turn	Right Angle	Ped / Cycle	Other ^a	Total for 3.7 Years	Average/Year
40 th Ave NE – between NE 75 th St and NE 82 nd St	0	0	0	0	0	2	2	0.5
43 rd Ave NE – between NE 75 th St and NE 82 nd St	0	0	0	0	0	0	0	0.0
NE 75 th St – between 35 th Ave NE and 45 th Ave NE	1	1	1	2	1	4	10 ^b	2.7
NE 77 th St – between 35 th Ave NE and 45 th Ave NE	0	0	0	1	0	3	4	1.1
NE 80 th St – between 35 th Ave NE and 45 th Ave NE	0	0	0	6	0	0	6	1.6

Source: City of Seattle Department of Transportation, September 2013.

- a. 'Other' collisions included vehicle hitting an object or parked vehicle, improper movement, or no collision diagram available.
b. Included four collisions that occurred at un-signalized locations (one at each location).

2.7. Transit Facilities and Service

King County Metro Transit provides bus service adjacent to the Thornton Creek Elementary School site. The closest bus stops are located on 40th Avenue NE at NE 77th Street. Stops serving both directions of travel are located on the north side of the intersection. These stops are served by Metro Routes 71 and 76. Route 71 provides all-day service seven days per week between the Wedgwood neighborhood and Downtown Seattle through Ravenna, the University District, and South Lake Union. The route operates from about 4:50 A.M. to 1:30 A.M. with headways (time between consecutive buses) of 20 to 30 minutes. Route 76 provides peak period peak direction service only on weekdays between the Wedgwood neighborhood and Downtown Seattle. The route operates with eight trips into Seattle in the morning (between 5:50 and 9:00 A.M.) and eight trips from Downtown in the afternoon between 3:40 and 7:05 P.M.). There are also stops served by these routes located south of the school site on NE 75th Street between 40th and 41st Avenues NE.

School bus transportation is made available to Thornton Creek Elementary School students who qualify for transportation. Only students residing within the Eckstein Service Area are eligible for District-provided bus transportation.

2.8. Non-Motorized Transportation Facilities

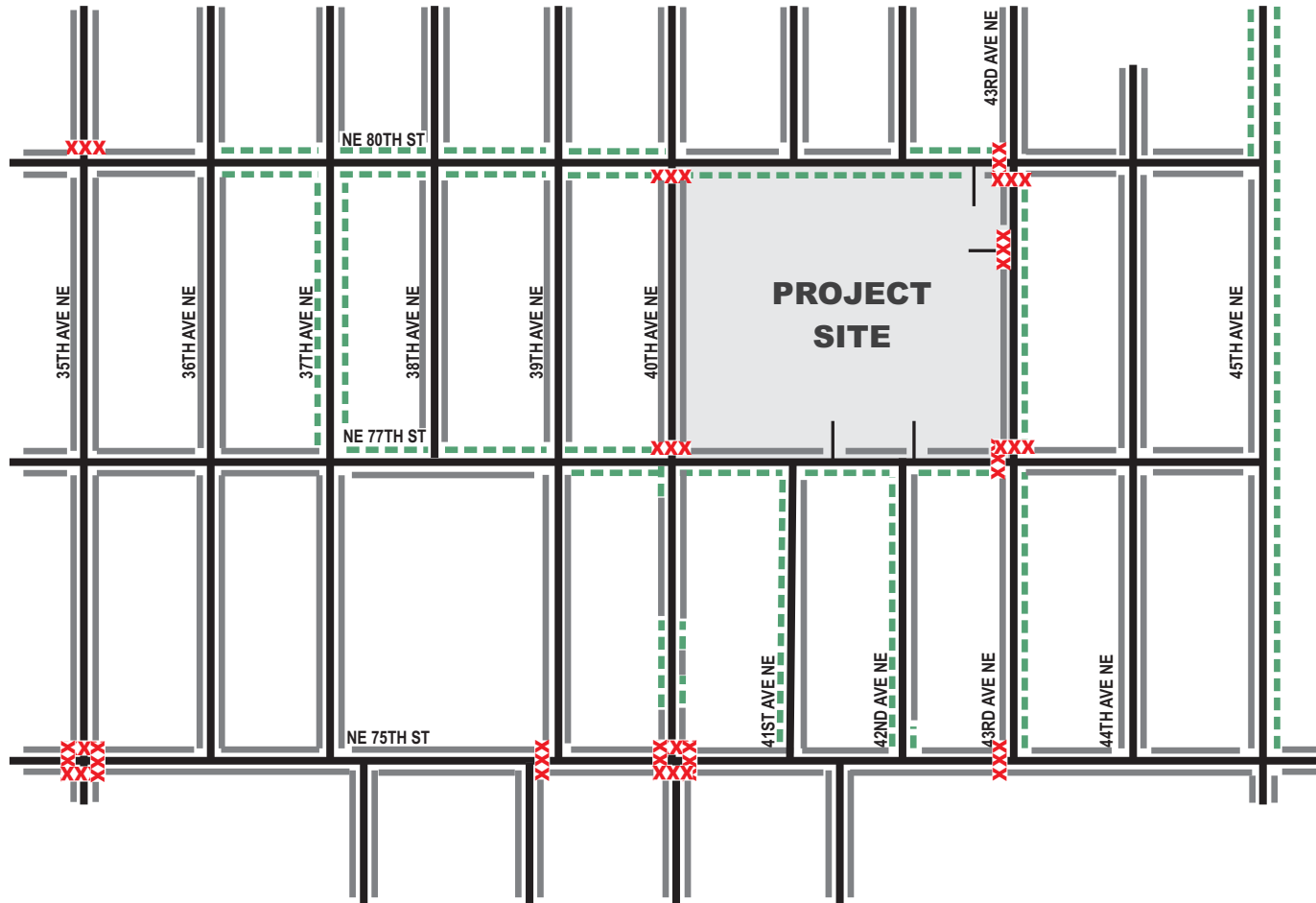
As described in the *Roadway Network* section, several roadways in the study area have sidewalks on one or both sides. However, there are also several roadways and roadway segments that do not have sidewalks or do not have complete sidewalks. There are signed and marked crosswalks on 40th Avenue NE at its intersections with NE 77th Street (crossing the north leg) and NE 80th Street (crossing the south leg). There are also marked and signed crosswalks along 43rd Avenue NE at its intersections with NE 80th Street (crossing the south and west legs) and NE 77th Street (crossing the north and west legs). The existing pedestrian network with the missing sidewalk segments is shown on Figure 8.

A new greenway was recently created close to the new school site along 39th Avenue NE and ends at NE 77th Street. The north-south connector links the Burke Gillman Trail and Seattle Children's Hospital to NE 77th Street. Greenways are intended to optimize safe bicycle and pedestrian travel by clearly defining crossings of arterials, increasing signage, controlling east-west traffic with stop signs, and providing islands for safe refuge. The project was funded by Children's Hospital and was completed in October 2012.

The *Wedgwood Vision Plan* recommended improving sidewalk connections and pedestrian crossings along NE 80th Street and NE 77th Street to increase the safety of these intersections. Additionally, the plan called for improving designated bike routes throughout the neighborhood.

The City's *Proposed Bicycle Master Plan* recommended a cycle track along 35th Avenue NE between NE 68th Street and NE 125th Street. The plan also recommended Neighborhood Greenway local connectors along 39th Avenue NE west of the site, 45th Avenue NE east of the site, and along NE 80th Street adjacent to the site and to the west. The plan includes proposed new in-street bike facilities (with minor separation) along NE 75th Street that would extend eastward from the existing facilities that were recently completed to 35th Avenue NE.

The Wedgwood Community Council recently received a Neighborhood Street Fund grant to install a crosswalk at the NE 80th Street intersection with 35th Avenue NE. As part of this crosswalk installation, SDOT also plans to change parking restrictions along part of 35th Avenue NE to reduce traffic speeds and improve safety between NE 75th Street and NE 85th Street.



KEY

-  Sidewalk
-  No Sidewalk
-  Crosswalk

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Figure 8
Pedestrian Network

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3. PROJECT IMPACTS

This section of the report describes the conditions that would exist with the new Thornton Creek Elementary School at its enrollment capacity of 660 students and with the existing Decatur Building housing a school at its planned enrollment capacity of 250 students. The vehicle trip estimates associated with both schools were added to the 2016-without-project traffic volume forecasts. Level of service analyses were performed to determine the proposed project's impact on traffic operations in the study area, including the site accesses. Parking demand and the potential change to on-street parking utilization was also estimated. The following sections describe the methodology used to determine the proposed project's impacts.

3.1. Roadway Network

The project would construct a new elementary school building on the southwestern portion of the Thornton Creek Elementary School site. A new on-site parking lot with a SPED bus load/unload zone and service/loading area would be constructed on the western portion of the site, with two one-way vehicle access driveways on 40th Avenue NE. The driveways would serve inbound traffic on the south and outbound traffic on the north. The project would expand the existing parking lot that currently serves Thornton Creek Elementary located at the northeast corner of the site. The access driveway on NE 80th Street would be relocated west by about 95 feet; the access driveway on 43rd Avenue NE would remain in its current location. The project would eliminate the existing parking lot located southwest of the existing school along with the two associated one-way driveways on NE 77th Street.

Frontage improvements are proposed along NE 80th Street that would consist of new curb and gutter, a planter strip, and a sidewalk. Parallel, on-street parking is proposed along the south side of NE 80th Street adjacent to the school. Curb bulbs are proposed on all four corners of the 40th Avenue NE intersections with NE 80th and NE 77th Streets. The project would also construct a 15-foot wide shared-use sidewalk along the site frontage of 40th Avenue NE. No changes to the frontage along NE 77th Street or 43rd Avenue NE are proposed.

The curb-side frontage of the school along the east side of 40th Avenue NE is proposed to be designated for school-bus load/unload only during morning arrival and afternoon dismissal. Similarly, the parallel parking along the south side of NE 80th Street and the north side of NE 77th Street are expected to be designated for parent-vehicle load/unload during the same periods. The exact times of the restrictions would be determined once the school and transportation schedules have been determined.

No other changes to the roadway network are proposed as part of the project.

3.2. Traffic Volumes

The proposed project would generate new vehicular, pedestrian, and bicycle activity on the surrounding transportation network. The new school is expected to have an enrollment capacity of 660 students. As described previously, the existing Decatur Buildings would be maintained for potential future use as a separate elementary or K-8 school with enrollment capacity of 250 students. With the enrollment increase from 360 students to the proposed capacity of 660 students plus the 250-student school operating in the Decatur Buildings, the school is expected to generate an increase in daily and peak hour traffic compared to existing conditions. The following describes the assumptions used to determine the traffic anticipated from the proposed project.

3.2.1. School Trip Generation

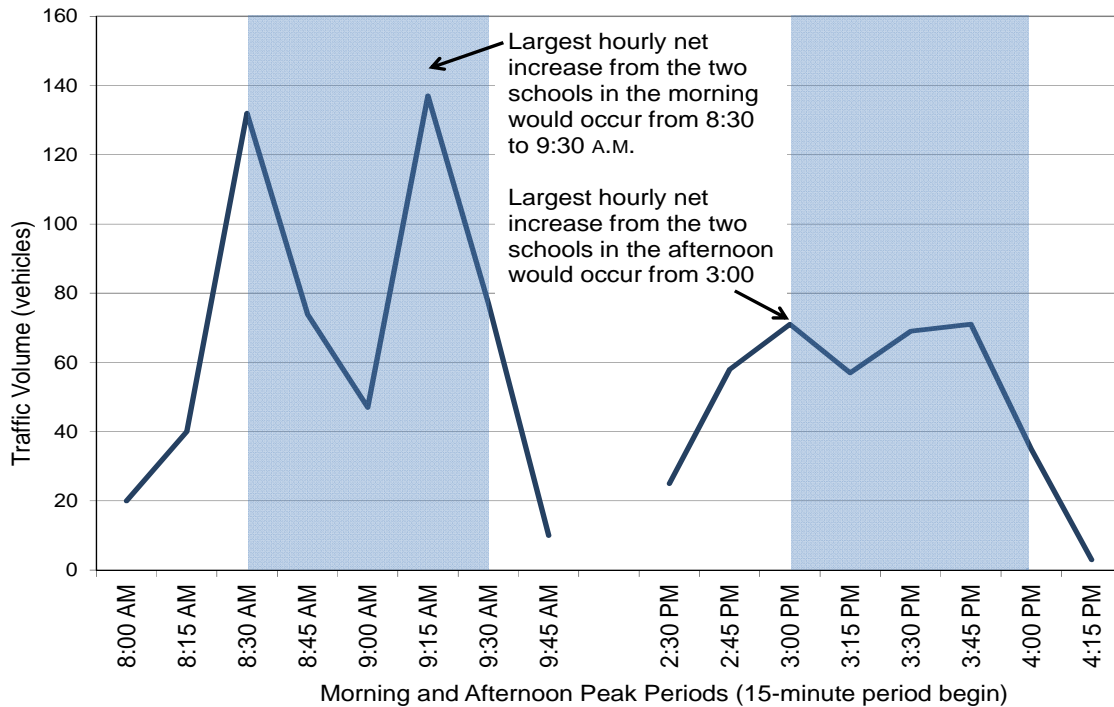
Trip generation estimates for school projects can be developed using one of two methods. For new schools, rates published in the Institute of Transportation Engineers' *Trip Generation Manual*¹² are typically applied. For replacements or expansions of existing schools, it is preferred to use counts of traffic at the existing school. This method works best for schools located in areas where school-related traffic can easily be isolated and identified, and traffic counts can be used to develop rates specifically for that school. At Thornton Creek Elementary, which has some staff parking and most parent-vehicle and school-bus loading off-site, it not possible to isolate school-related traffic from non-school traffic by only counting site driveways. Therefore, trip generation estimates for the school were derived from traffic counts performed at the driveways and intersections surrounding the site. The volumes observed during peak arrival and departure times were compared to volumes that occur during other hours when the school is not generating traffic to estimate the school-related traffic. The resulting estimates were compared to published trip generation rates as well as rates developed from counts at another Seattle Public School where school traffic could be more easily isolated.

Based on the data collected, the existing Thornton Creek Elementary School generates an estimated 0.88 morning peak hour trips per student and 0.66 afternoon peak hour trips per student. These rates are higher than the average rates published for Elementary Schools (Land Use 520) in the *Trip Generation Manual*, which are 0.45 trips per student in the morning peak hour and 0.28 trips per student in the afternoon peak hour. The rates derived for Thornton Creek Elementary are also higher than those found at Schmitz Park Elementary in West Seattle (0.69 morning peak hour trips per student and 0.40 afternoon peak hour trips per student). Since these rates were derived specifically for the existing school, they are most appropriate for use in evaluating future conditions with the replacement project.

The rates derived specifically for Thornton Creek Elementary were applied to the proposed new enrollment capacity (660 students). These rates were also applied to the planned enrollment capacity of the school that could occupy the Decatur Buildings. As noted previously, the District has committed to staggering the start times of the two schools on the site by at least 45 minutes to minimize the traffic and parking-related impacts to the local neighborhood. To account for the staggered start times, a temporal distribution (in 15-minute increments) of school-traffic was derived from the trip generation count data. The temporal distribution was applied to the trip generation estimates for each school accounting for the 45-minute staggered starts and then combined to determine the largest combined net increase in traffic during morning and afternoon peak periods. Figure 9 shows how the traffic from both schools is projected to combine and result in peak volumes in the morning and afternoon. During both peak hours, the first (earliest) spikes in 15-minute volume (8:30 A.M. during morning arrivals and 3:00 P.M. during the afternoon dismissal) are comprised of the highest 15-minute volume generated by the 250-student school in the Decatur Buildings combined with a smaller volume of early trips generated by the new Thornton Creek Elementary. The second spikes in volume (at 9:15 A.M. and 3:45 P.M.) are comprised entirely of traffic generated by the new Thornton Creek Elementary School.

¹² ITE, 9th Edition, 2012.

Figure 9. Net New Traffic by 15-Minute Period With Staggered (by 45-minutes) Start Times



Source: Heffron Transportation, Inc., November 2013

Table 4 presents the resulting trip estimates for the two planned schools on the site, the existing school, and the estimated net change in traffic expected during peak hours due to the project. It is important to note that the trip estimates presented below reflect the highest combined hourly volumes for the entire site. Each school would generate slightly higher hourly traffic volumes during other hours. For example, Thornton Creek Elementary would generate its highest volumes from 8:45 to 9:45 A.M. and from 3:15 to 4:15 P.M., while the school in the Decatur Buildings would generate its highest volumes from 8:00 to 9:00 A.M. and from 2:30 to 3:30 P.M. Due to the 45-minute staggered start times, the combined site peak hours would occur from 8:30 to 9:30 A.M. and from 3:00 to 4:00 P.M. and are represented in the table.

Table 4. Thornton Creek Elementary School Project – Trip Generation Estimates

Site Condition	Enrollment	Morning Peak Hour (8:30 to 9:30 A.M.)			Afternoon Peak Hour (3:00 to 4:00 P.M.)		
		In	Out	Total	In	Out	Total
New Thornton Creek Elementary	660 students ^a	275	174	449	175	215	390
Planned School in Decatur Buildings	250 students ^a	91	95	186	23	67	90
Total Combined for Site	910 students	366	269	635	198	282	480
Existing Thornton Creek Elementary	-360 students ^b	-150	-95	-245	-95	-117	-212
Net Change	550 students	216	174	390	103	165	268

Source: Heffron Transportation, Inc., October 2013.

a. Planned enrollment capacities for both schools.

b. Enrollment of the existing school at the time of analysis (2013).

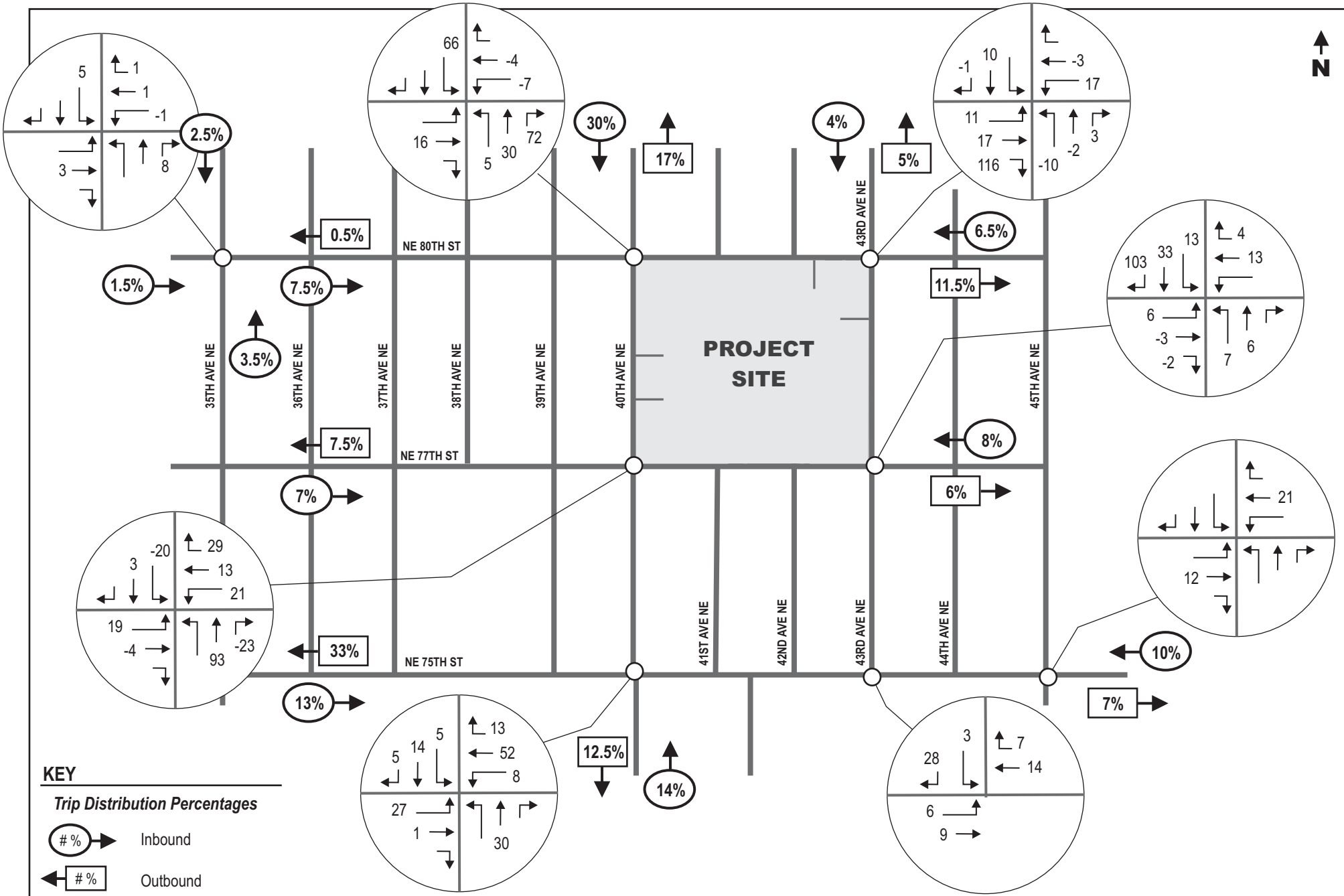
The trips generation estimates presented in Table 4 include school bus trips, employee trips, and parent-vehicle trips. The existing Thornton Creek Elementary School currently operates with 10 full-size and 4 smaller buses (SPED). At this time the District expects the new Thornton Creek Elementary to be served by 8 full size and 6 SPED buses. The number of buses that might serve the school program in the Decatur Building is not known at this time and will depend on the specific program and enrollment characteristics of the school; however, for this analysis it was assumed that it could be served by 6 full size and 2 smaller SPED buses.

3.2.2. Trip Distribution & Assignment

The traffic estimates presented in Table 4 for the Thornton Creek Elementary School site were assigned to the local roadway network. The distribution patterns for morning and afternoon peak hour trips were estimated based on the potential locations of parent-vehicle loading/unloading activities, the location of the proposed bus load/unload zones, and the locations of parking. Most of the morning and afternoon peak hour trips are expected to consist of parent vehicles (for student drop off and pick up) and school buses. Some trips also would likely be generated by teachers or staff. The District plans to encourage a clockwise circulation pattern for parent vehicles to allow for improved traffic flow around the schools. Parents dropping off or picking up students before and after school would be encouraged to travel eastbound on NE 80th Street, south on 43rd Avenue NE, and westbound on NE 77th Street (this circulation plan would not apply to local neighborhood trips). The one-way circulation pattern was assumed in the trip distribution pattern.

Full-size school buses are expected to approach the site from the south using 40th Avenue NE where the bus load/unload zones are planned on the east (northbound) side of the street. After unloading or loading at the bus zone, buses would depart to the north. Parents dropping off and picking up students are likely to arrive from all directions as they do currently. However, the new school will be located on the western part of the site and parent-vehicle load/unload zones are planned on NE 80th Street (south side) and NE 77th Street (north side). The distribution and assignment of traffic to both schools accounts for this planned circulation pattern.

The estimated project traffic distribution patterns and assignments of net new trips are shown on Figure 10 for the morning peak hour and on Figure 11 for the afternoon peak hour. The net new peak hour school trips were added to the forecast 2016 without-project traffic volumes to represent future conditions with the two schools on the site. The forecast 2016 with-project morning and afternoon peak hour traffic volumes are shown on Figure 12 and Figure 13, respectively.



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Figure 10
Net Trip Distribution & Assignment
Morning Peak Hour

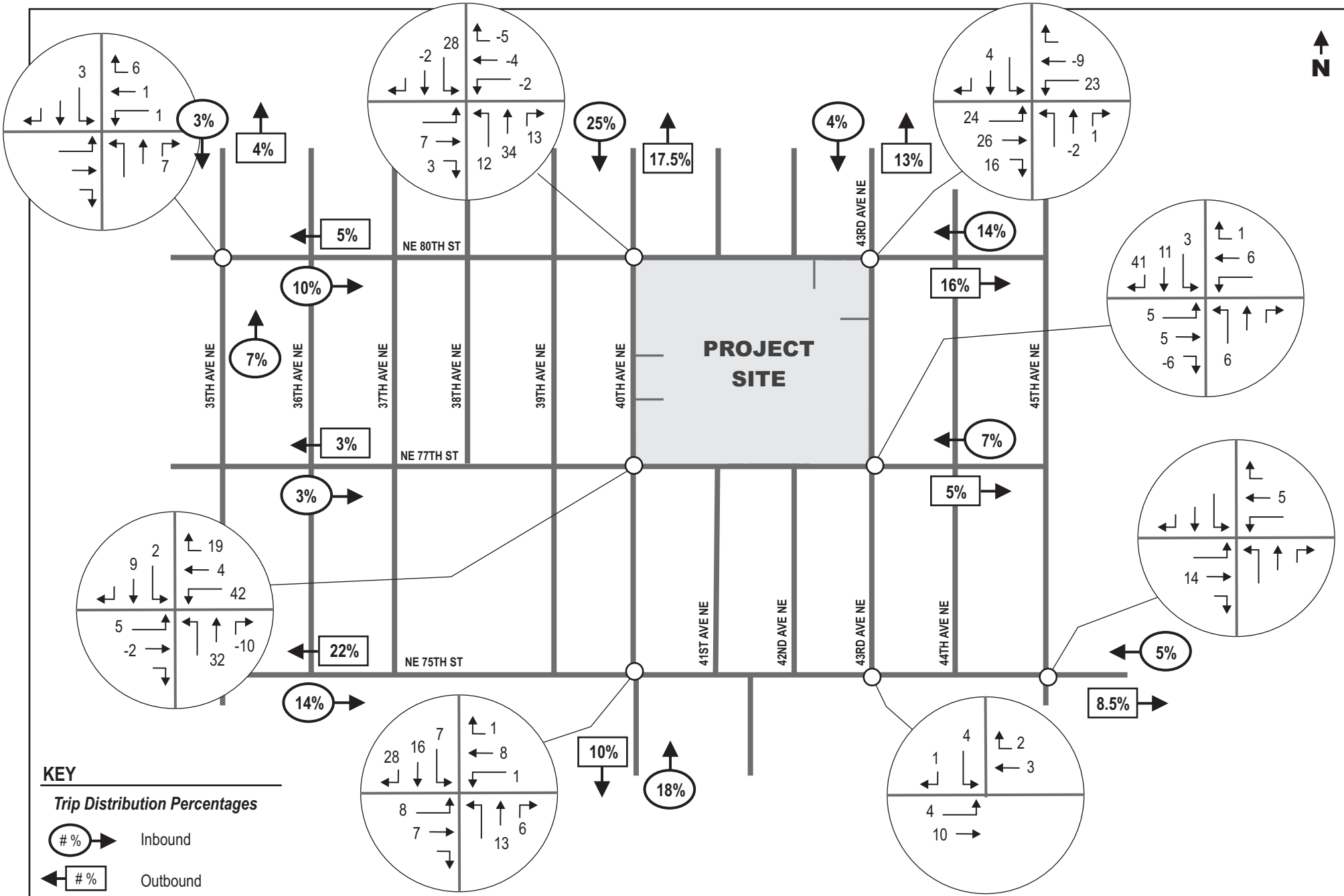
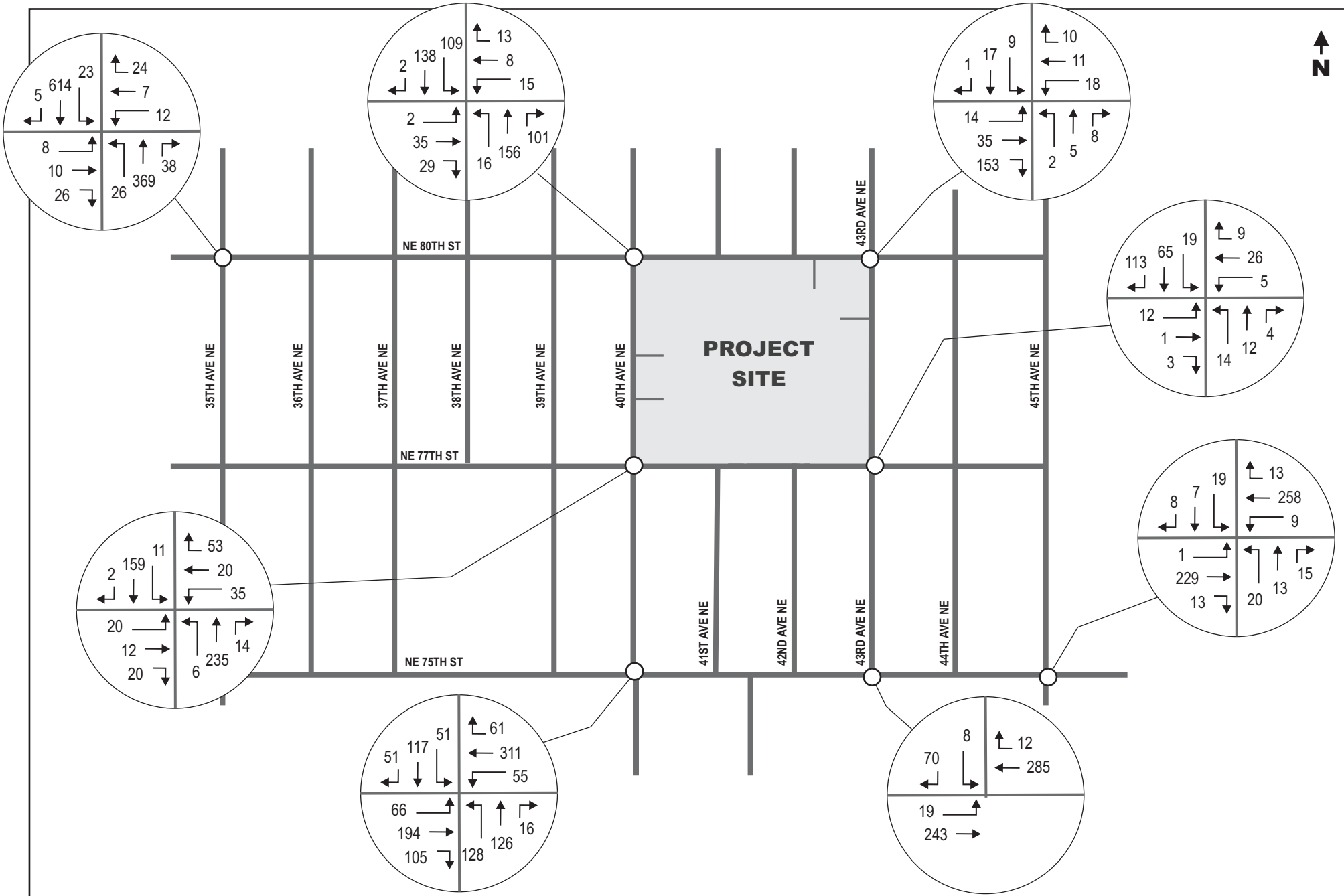


Figure 11
 Net Trip Distribution & Assignment
 Afternoon Peak Hour

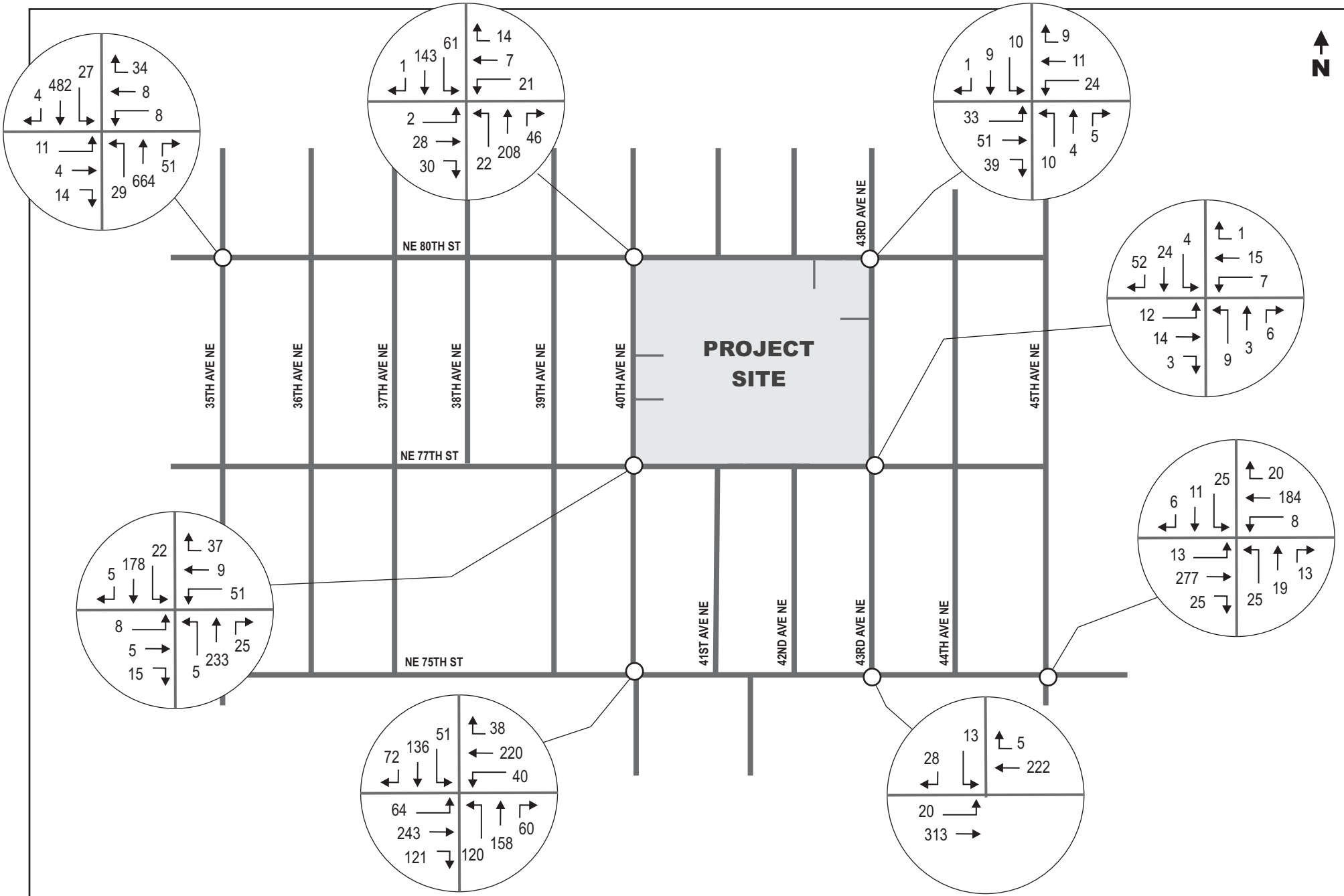
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Figure 12
Forecast 2016 With-Project Traffic Volumes
Morning Peak Hour



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Figure 13
Forecast 2016 With-Project Traffic Volumes
Afternoon Peak Hour

3.3. Traffic Operations

Intersection levels of service for future with-project conditions were determined using the same methodology described previously for existing and future without-project conditions. The schools are expected to generate new pedestrian trips and could increase the number of pedestrian crossings at the nearby study intersections. The potential increases in pedestrian crossing activity as well as the added school bus trips and the peaking characteristics of school traffic (school drop-off and pick-up primarily occurs during about 25 minutes in the peak hour) have all been accounted for in the operations analyses of the study area intersections.

Levels of service for the off-site study area intersections were calculated using the 2016-with-project traffic volumes. Table 5 shows the results of the analysis; levels of service for the 2016-without-project conditions are shown for comparison. As shown, the additional traffic that would be generated by new Thornton Creek Elementary School and the school in the Decatur Buildings would add delay to several of the study area intersections and turning movements during both the morning and afternoon peak hours. The school-related traffic would add delay to the NE 75th Street/40th Avenue NE intersection, which currently operates at LOS F during the morning peak hour and is forecast to operate at LOS F in the morning without or with the Thornton Creek Elementary School project. The increase in school-related traffic is expected to degrade the intersection from LOS E to LOS F during the afternoon peak hour. Installation of a traffic signal with channelization adjustments, such as striping for eastbound and westbound left-turn pockets within the existing pavement on NE 75th Street, would improve operations at the intersection and would mitigate the school-related traffic impacts.

All of the other study-area intersections would operate at LOS A overall with most of the movements at these intersections operating at LOS D or better. The exceptions are the eastbound and westbound movements at the NE 80th Street/35th Avenue NE intersection during the afternoon peak hour. Eastbound movements at this intersection are forecast to operate at LOS E without or with the school project; westbound movements are forecast to be degraded from LOS D to LOS E due to the project. However, the project-related delays that would be added are relatively small—less than 3 seconds per vehicle for both movements.

Table 5. Level of Service Summary – 2016-Without- and With-Project Conditions

	Morning Peak Hour				Afternoon Peak Hour			
	2016 w/o project		2016 w/ project		2016 w/o project		2016 w/ project	
	LOS ¹	Delay ²	LOS	Delay	LOS	Delay	LOS	Delay
Two-Way Stop-Controlled Intersections								
NE 80 th Street / 35 th Avenue NE (overall)	A	2.6	A	2.9	A	2.9	A	3.5
Northbound Left Turn	A	9.2	A	9.2	A	8.7	A	8.7
Eastbound Movements	C	24.2	D	26.5	E	38.4	E	41.0
Westbound Movements	D	26.2	D	26.7	D	32.3	E	35.2
Southbound Left Turn	A	8.4	A	8.4	A	9.5	A	9.5
NE 80 th Street / 40 th Avenue NE (overall)	A	4.7	A	7.4	A	3.9	A	4.6
Northbound Left Turn	A	7.8	A	7.9	A	7.7	A	8.0
Eastbound Movements	B	13.3	D	28.7	B	12.7	C	16.2
Westbound Movements	C	16.7	D	31.9	B	14.7	C	19.7
Southbound Left Turn	A	7.9	A	8.8	A	7.9	A	8.2
NE 77 th Street / 40 th Avenue NE (overall)	A	3.5	A	7.9	A	2.4	A	7.6
Northbound Left Turn	A	7.8	A	7.9	A	7.8	A	8.0
Eastbound Movements	B	13.6	C	22.5	B	12.3	C	15.5
Westbound Movements	B	14.7	D	27.4	B	13.1	D	25.8
Southbound Left Turn	A	8.0	A	8.4	A	7.9	A	8.1
NE 75 th Street / 43 rd Avenue NE (overall)	A	1.2	A	1.9	A	1.2	A	1.5
Eastbound Left Turn	A	8.3	A	8.3	A	7.9	A	7.9
Southbound Turns	B	12.3	B	13.2	B	11.7	B	12.4
NE 75 th Street / 45 th Avenue NE (overall)	A	2.8	A	2.8	A	3.1	A	3.1
Northbound Left Turn	C	17.4	C	18.5	C	16.0	C	16.5
Eastbound Movements	A	8.1	A	8.2	A	7.8	A	7.8
Westbound Movements	A	8.1	A	8.2	A	8.1	A	8.2
Southbound Left Turn	C	18.0	C	19.1	C	16.4	C	17.0
All-way Stop-Controlled	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
NE 75 th Street / 40 th Avenue NE (overall)	F	57.3	F	64.5	E	45.9	F	57.5
NE 77 th Street / 43 rd Avenue NE (overall) ³	A	7.7	A	9.2	A	7.4	A	7.6
Traffic-Circle Controlled	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
NE 80 th Street / 43 rd Avenue NE (overall) ⁴	A	4.5	A	8.3	A	4.2	A	5.1

Source: Heffron Transportation, Inc., November 2013.

1. Level of service.
2. Average seconds of delay per vehicle.
3. Intersection is uncontrolled. Analysis assumes all-way-stop control for evaluation of level of service.
4. Intersection is controlled by a traffic circle. Analysis assumes roundabout control for evaluation of level of service.

The current site configuration, with a limited amount of on-site parking and loading/unloading space for parent-vehicles and school buses, contribute to morning and afternoon peak hour congestion. The revised site-configuration, with school-bus load/unload zones on 40th Avenue NE and large parent-vehicle load/unload zones on NE 80th and NE 77th Streets combined with the planned clockwise circulation pattern should improve the congestion in the area around the school. However, with the increase in student enrollment capacity, the benefit of these improvements may not be as noticeable

compared to existing conditions. Similar to the existing conditions, in the future with the proposed new school, traffic congestion is expected to be more prevalent during the afternoon peak hour than the morning peak hour. Traffic volumes would continue to be higher during the morning conditions parents and school buses typically drop off students and then leave the site area during this time. In the afternoon, parents and school buses typically park and wait for dismissal. With the increased enrollment, there would not be adequate on-site or on-street space adjacent to the site for the volume of parent-vehicles that will likely wait for students after school. As a result, parents will likely continue to be parked in many areas near the site including along 40th, 41st, 42nd, and 43rd Avenues SW as well as along NE 77th and NE 80th Streets and students would walk to these parked vehicles.

3.4. Site Access

The turning movements at the proposed new site driveways on 40th Avenue NE are anticipated to operate at LOS C or better during both the morning and afternoon peak times. The driveway on NE 80th Street and the driveway on 43rd Avenue NE are expected to operate at LOS A. The roadway frontage improvements and driveways should be designed so that adequate sight lines are available for exiting drivers. The location and design of bus load/unload and parent-vehicle load/unload zones should consider driveway sight lines.

3.5. Parking Demand and Supply

3.5.1. School Day Parking

Parking demand estimates for the new Thornton Creek Elementary School and the planned school to be located within the Decatur Buildings were developed based on the projected staffing levels at the schools as well as parking demand rates derived recently from counts at and around Schmitz Park Elementary School. Based on these counts, a midday parking demand rate of 1.23 vehicles per employee was derived and accounts for employees and parent volunteers or other visitors that may be on-site midday.

The District estimates that the new Thornton Creek Elementary School could have about 75 employees with the school at full capacity. Using the parking rates described above, the new school could have a midday peak parking demand of about 92 vehicles. The District estimates that the new school program in the Decatur Buildings could have about 22 employees with the school at full capacity. This would relate to a midday peak parking demand of about 27 vehicles.

The project proposes to provide 43 parking spaces in a surface parking lot on the west side of the new Thornton Creek Elementary School site. This lot would accommodate just over 40% of the estimated peak midday demand for the school. The project would also expand the lot that serves the existing Decatur Buildings (at the northeast corner of the site) to provide 40 spaces. This lot would accommodate about all of the estimated school-day demand generated by the school in the Decatur Buildings and could provide additional supply for the new Thornton Creek Elementary. An estimated 36 vehicles could overflow to adjacent or nearby on-street parking.

The existing school has 45 staff, which relates to an estimated midday parking demand of 55 vehicles. Counts performed at the site's on-site parking lots found between 31 and 37 vehicles. This indicates that the school is likely generating on-street demand for between 18 and 24 spaces midday. The proposed project would increase the midday on-street parking demand by between 12 and 18 vehicles.

The proposal includes frontage improvements that are expected to provide time-restricted parallel parking on the south side of NE 80th Street and the north side of NE 77th Street. This parking would be available during times other than peak arrival and dismissal periods. Additional parking supply would

exist on the east side of 40th Avenue NE, when not restricted for school bus load/unload. These curb-side spaces along NE 77th Street, NE 80th Street, and 40th Avenue NE could be used for midday visitor and volunteer parking; however, they would not be available for most staff due to the time restrictions. Other on-street parking within the site vicinity does not have parking time restrictions and the midday utilization is relatively low (20%). Therefore, the existing on-street supply can accommodate the excess midday demand generated by the two schools on the site. It should be noted that the new midday on-street parking demand created by the two schools will likely occur along block faces that are closest to the school buildings. With the project, these block faces could have demand that is at or near capacity, while roadways further from the site may not experience any increases in demand.

3.5.2. Evening Event Parking

The new Thornton Creek Elementary School would have two commons spaces and a gymnasium that could be used for events at the school. The proposed north commons and gymnasium would have a combined capacity of 1,300 persons; the capacity of the south commons is expected to be 224 persons. The school is expected to host evening events periodically throughout the school year that could use these spaces. Some of the school's larger events are currently held off-site (for example at the nearby Eckstein Middle School) and may continue to be held off-site. The District indicated that the school expects to continue with the existing special events that currently occur at the school. These include the following:

- **Large School Events** – Typically occur about once or twice per month with attendance that can range from 100 to 700 people. They include events such as: Back to School Night, Winter Bazaar, Family Dance Night, Athletic Skills and Art Show Night, Expedition Exhibition Night, and Concerts. Some of the larger events have staggered arrivals and not all attendees are on site at once, while others have fixed start and end times and all attendees are on site simultaneously.
- **Site Council Meetings** – Occur once a month with attendance of about 30 people.
- **Community Meetings** – The site is regularly schedule for use by community groups (e.g. Cub Scouts, Boy Scouts, Brownies, etc.) for meetings that may occur in classrooms, the lunchroom, gymnasium, or other areas of the school. These typically have relatively small attendance 10 to 50, but may occur nightly.

The separate school program in the Decatur Buildings could also host events; however, the events are expected to be much smaller due to the lower enrollment capacity. The District would require that event schedules of the two schools be coordinated so that two large events would not occur simultaneously and so one school's attendees could park in any of the on-site parking lots.

With the larger enrollment capacity at the new Thornton Creek Elementary School, attendance at the larger school events would also likely increase and could range from 200 to 1,300 based on the proportional increase in enrollment and assembly space capacity. Typically for larger events, there are between 3.0 and 3.5 persons attending for each parked vehicle. This rate accounts for higher levels of carpooling (parents and children in a single vehicle) as well as drop-off activity that does not generate parked vehicles. At these rates, the large events could generate parking demand between 370 and 435 vehicles. Some of the demand (91 vehicles including capacity of the on-site SPED bus load/unload zone) could be accommodated within the two on-site parking lots. In addition, on-street school-bus and passenger-vehicle load zones would be available for parking in the evenings. Based on the on-street parking utilization analysis presented previously, there was an average of nearly 650 on-street spaces available in the evenings when events could occur. With large school events, the on-street supply could accommodate the overflow demand within the 800-foot parking area evaluated.

However, the parking overflow would be noticeable and would likely be congested along the roadways closest to the school.

3.6. Athletic Field Use

As described previously, the site redevelopment proposal would replace the existing athletic fields that currently occupy the entire western portion of the site, with new fields on the northwestern portion of the site. The fields are expected to be used by the schools for physical education and before and after school recreation.

As currently occurs at the site, the fields are also expected to be used for organized non-scholastic athletic activities such as little-league baseball, softball, soccer, ultimate, and lacrosse. The District typically allows non-scholastic activities to be scheduled by Seattle Parks and Recreation or other groups during times when they are not used for scholastic activities. Typical weekday use is expected to occur after school use is complete (usually after 5:30 P.M. on weekdays). Since there would be no field lighting, the hours available for non-scholastic use would be limited during fall and winter months but extended during late spring and summer months. Weekend use could include games or practices on the site all day. The two baseball/softball fields could be used simultaneously, but neither could be used when the football/soccer field is used.

The traffic and parking demand generated by the athletic fields is expected to be similar to current conditions; however, weekend and evening parking demand generated by the athletic fields may be accommodated within the new on-site parking lot instead of on street. Since the new lot is located very close to the fields, on-street field-related parking demand may be reduced somewhat compared to existing conditions. No new traffic or parking impacts are expected as a result of the replacement athletic fields.

3.7. Traffic Safety

The collision data provided for the study area did not indicate any unusual collision patterns that would impact or be impacted by the proposed project. The new school would increase traffic and pedestrian traffic activity around the school site; however, the proposal would provide frontage improvements with sidewalks and pull-outs for vehicle loading/unloading areas. As a result, the project is not expected to result in any adverse safety impacts.

3.8. Transit

A small number of transit trips may be generated by the teachers or staff at the site. The nearest transit stops are currently located directly in front of the proposed new school on 40th Avenue NE at NE 77th Street. However, in order to accommodate the on-street school-bus load/unload zones along the east side of 40th Avenue NE, the District intends to work with SDOT and King County Metro to relocate the northbound bus stop to the north side of NE 80th Street, one block north of its current location.

3.9. Non-Motorized Transportation Facilities

The new Thornton Creek Elementary School with increased enrollment capacity is expected to generate additional pedestrian and bicycle trips within the site vicinity. The proposal would construct new sidewalks along its site frontages on 40th Avenue NE and NE 80th Street.

Prior plans by both the City and Wedgwood neighborhood have recommended many pedestrian improvements in the site vicinity, including improving sidewalk connections along NE 80th Street and NE 77th Street. The District should continue to coordinate with the City to identify potential improvements and funding to eliminate gaps in the existing pedestrian network near the school. The District should also coordinate with the Seattle Police Department (SPD) and SDOT to maintain and enforce school-zone speed limits near the site. Finally, the District should continue its discussions with the Seattle School Safety Committee (of which SDOT is a member) to review walk routes and determine if any changes should be made to crosswalk locations, signage, pavement markings, school zone speed limits, or crossing guard locations.

3.10. Possible School Board Policy Changes

At the time of this analysis, the Seattle School Board was considering a number of actions related to enrollment boundary adjustments, transportation, and school start times to address budget constraints related to transportation. The specific changes being considered were:

- Enrollment boundary adjustments;
- Ending yellow-bus transportation or option school students who live outside the school's middle school attendance area and ending previous "grandfathering" of transportation that was allowed under the previous New Student Assignment Plan form 2010-11;
- Standardizing yellow-bus arrival times at 7:35, 8:25, and 9:15 A.M.; and
- Swapping the start times of elementary and high schools to have elementary schools start earlier (7:50 or 8:00 A.M. instead of 9:30 A.M.).

Changes to the enrollment boundaries for the schools are not expected to result in changes to the analysis prepared within the study area near the school, since the traffic patterns near the school would be similar or identical even with adjustments to the outer limits of the boundaries.

Changes to the transportation policy could have some effect on the traffic generation for the two schools. Specifically, ending yellow-bus transportation to option-school students who live outside that school's middle school attendance area could increase the number of parent-vehicle trips generated. Based on review of the 2012 student spotting map provided by the District, about 28 students (7.5%) of the total student population lived outside the middle school enrollment area. With the policy change, these students would no longer be eligible for school bus transportation. Based on ridership information from the District, about 40% of eligible students actually ride the bus on average.¹³ That would indicate about 11 students could be shifted from school buses to other modes (likely parent-vehicle cars or carpools); which could translate to about 10 additional trips in the morning and 7 additional trips in the afternoon. Adding those trips would not change the findings or conclusions of the analysis presented previously for the project.

Standardizing the yellow-bus arrival times as listed would be consistent with the assumed staggered start times for the two schools and would not change the analysis or findings of the analysis presented.

Swapping the start times of high school and elementary schools could have the effect of pushing the project traffic associated with at least one of the two schools earlier in the morning and more directly overlapping the commuter AM peak hour traffic on study-area roadways and intersections. This could also result in more pronounced school-related impacts at arterial intersections in the site vicinity during the morning conditions. If the District elected to make this change, additional transportation analysis would be required to document the impacts and possible mitigation.

¹³ Seattle Public Schools Transportation staff, Winter Ridership Survey for Thornton Creek Elementary, March 2014.

3.11. Short-term Impacts from Construction

Construction of the new building is planned to start in fall 2014. The new school is planned to be complete for occupancy by fall of 2016. The construction effort would include earthwork that would consist of excavation that would remove about 5,565 cubic yards (cy) of material from the site and import about 5,500 cy of fill to the site. Assuming an average of 20-cubic yards per truck (truck/trailer combination), the excavation and fill would generate about 555 truckloads (555 trucks in and 555 trucks out). The export and import would likely occur separately with each lasting about a month (20 work days). This would correspond to about 28 to 30 truck trips per day and an average of about three or four truck trips per hour on a typical eight-hour construction work day. This volume of truck traffic would be noticeable to nearby residents, but is not expected to result in significant impacts to traffic operations in the site vicinity.

The construction of the project would also generate employee and equipment trips to and from the site. It is anticipated that construction workers would arrive at the construction site before the AM peak traffic period on local area streets and depart the site prior to the PM peak period; construction work shifts for schools are usually from 7:00 A.M. to 3:30 P.M., with workers arriving between 6:30 and 6:45 A.M. The number of workers at the project site at any one time would vary depending upon the construction element being implemented. Some parking for construction personnel would be provided within the site, but some construction workers could park along the site frontage.

4. FINDINGS AND RECOMMENDATIONS

The following summarizes the findings of the analysis:

- The new Thornton Creek Elementary School is expected to accommodate a student capacity of 660 and have about 62 full-time (FT) and 13 part-time (PT) employees.
- The existing Decatur Buildings would be maintained for potential future use as a separate elementary or K-8 school, for which a program has not yet been defined. Enrollment capacity for the school in the Decatur Buildings would be 250 students after the portables are removed. The District estimates the school in the Decatur building would have 22 employees.
- The combined schools are projected to generate a net increase of 390 trips during the morning peak hour and 268 trips during the afternoon peak hour.
- Traffic conditions will continue to be busy along the roadways that surround the site—NE 77th Street, NE 80th Street, 40th Avenue NE and 43rd Avenue NE in the morning before school begins and in the afternoon when school is dismissed.
- New traffic generated by the two schools is expected to add some delay to the study-area intersections during the peak 25 minutes before and after school. Movements at all but two of the intersections are forecast to operate at LOS D or better with the project.
- The NE 75th Street/40th Avenue NE intersection currently operates at LOS F during the morning peak hour. It would continue to operate at LOS F without or with the Thornton Creek Elementary School project. However, the school-related traffic would add delay to this LOS F condition. During the afternoon peak hour, new school-related traffic would degrade the intersection from LOS E to LOS F.
- During the afternoon peak hour at the NE 80th Street/35th Avenue NE intersection, eastbound movements are forecast to operate at LOS E without or with the school project. Westbound movements are forecast to be degraded from LOS D to LOS E due to the project. However, the project-related delays that would be added are relatively small—less than 3 seconds per vehicle for both movements.
- The two schools are expected to generate a combined midday parking demand of about 119 vehicles. Most of the midday parking demand (83 vehicles) could be accommodated within the on-site parking lots; the remainder (about 36 vehicles) is expected to occur on-street along roadways adjacent to or near the two schools.
- During the evenings when large events are held at the school (expected to be once or twice per month at each school), on-street neighborhood parking demand is expected to increase. However, the additional demand could be accommodated with on-site and on-street spaces.

Based on the above findings, the following measures are recommended to reduce the traffic and parking impacts associated with the Thornton Creek Elementary School project.

- A. Prior to the school opening, the District and school principal should establish a Transportation Management Plan to educate parents and students about the revised access and parking elements for the new school site layout. The effort should encourage school bus ridership, carpooling, and supervised walking (such as walking school buses). The plan should define

clear procedures and travel routes for parent vehicles, including the planned clockwise circulation pattern for the drop-off/pick-up locations on NE 77th and 80th Streets.

- B. If SDOT determines that the NE 75th Street/40th Avenue NE intersection should be signalized, it would be appropriate for the District to contribute to the costs for signalization. Since the intersection already meets some signal warrants, a proportional share of the costs of signalization based on net new traffic expected from the project would be reasonable. During the morning peak hour, the net increase in traffic due to the school project would represent about 12% of the total entering volume at the intersection; during the afternoon peak hour, new school traffic would represent about 7% of the total entering volume.
- C. The District should work with SDOT to confirm the locations, extent, and signage of parent-vehicle load/unload zones along the north side NE 77th Street and the south side of NE 80th Street as well as school-bus load/unload zones along 40th Avenue NE (for Thornton Creek Elementary) and 43rd Avenue NE and NE 77th Street (for the school in the Decatur Buildings).
- D. The District should continue its discussions with the Seattle School Safety Committee (of which SDOT is a member) to review walk routes and determine if any changes should be made to crosswalk locations, signage, pavement markings, school zone speed limits, or crossing guard locations.
- E. The District should continue to coordinate with the City to identify potential improvements and funding to eliminate gaps in the existing pedestrian facility network near the school.
- F. The event calendars at both schools should be actively coordinated to ensure that large events are not held at both schools simultaneously.
- G. The District and school administration should develop a neighborhood communication plan to inform nearby neighbors of events each year. The plan should be updated annually (or as events are scheduled) and should provide information about the dates, times, and rough magnitude of attendance. The communication would be intended to allow neighbors to plan for the occasional increase in on-street parking demand that would occur with large events.
- H. The schools should develop transportation and parking management plans for large events to minimize the traffic and parking impacts associated with large events at both schools.
- I. The roadway frontage improvements along 40th Avenue NE and NE 80th Street should be designed to ensure that adequate sight lines are available for drivers exiting the site driveways on these two roadways.
- J. The District should require the selected contractor to develop a construction management plan (CMP) that addresses traffic and pedestrian control during school construction. It should define truck routes, lane closures, walkway closures, and parking disruptions, as necessary. To the extent possible, the CMP should direct trucks along the shortest route to arterials and away from residential streets to avoid unnecessary conflicts with resident and pedestrian activity. The CMP may also include measures to keep adjacent streets clean on a daily basis at the truck exit points (such as street sweeping or on-site truck wheel cleaning) to reduce tracking dirt offsite. The CMP should identify parking locations for the construction staff; to the extent possible, construction employee parking should be contained on-site.

APPENDIX A

Level of Service Definitions

Levels of service (LOS) are qualitative descriptions of traffic operating conditions. These levels of service are designated with letters ranging from LOS A, which is indicative of good operating conditions with little or no delay, to LOS F, which is indicative of stop-and-go conditions with frequent and lengthy delays. Levels of service for this analysis were developed using procedures presented in the *Highway Capacity Manual* (Transportation Research Board, 2010).

For unsignalized intersections, level of service is based on the average delay per vehicle for each turning movement. The level of service for a two-way, stop-controlled intersection is determined by the computed or measured control delay and is defined for each minor movement. Delay is related to the availability of gaps in the main street's traffic flow, and the ability of a driver to enter or pass through those gaps. Table A-2 shows the level of service criteria for unsignalized intersections from the *Highway Capacity Manual 2010*.

Table A-2. Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Delay (seconds per vehicle)
A	Less than 10.0
B	10.1 to 15.0
C	15.1 to 25.0
D	25.1 to 35.0
E	35.1 to 50.0
F	Greater than 50.0

Source: Transportation Research Board, *Highway Capacity Manual*, 2010

APPENDIX B

Parking Utilization Study Data

Thornton Creek Elementary Parking Summary of Supply and Demand Count

Block Face ID	Street Name	Street Segment	Side of Street	Parking Supply						Parking Demand					
				Number of Unrestricted Parallel Parking Spaces	Number of Unrestricted Angle Parking Spaces	School Bus Only 8 am - 4 pm	School Bus Only 8 - 10 AM 2 - 4 PM	Total Legal On-Street Spaces Between 10 am - 2 pm	Total Legal On-Street Spaces Before 8:00 am and After 4:00 pm	Mid-Morning Counts 10:00 - 11:00 am		Evening Counts 8:30 - 9:45 pm		Weekend Counts	
										Tuesday 09.17.13	Wednesday 09.18.13	Tuesday 09.17.13	Wednesday 09.18.13	Sunday 09.22.13 11:30 am-12:30 pm	Saturday 09.28.13 11:00 am-12:00 pm
AA	40th Avenue NE	800' point and NE 82nd St	W	4	0	0	0	4	4	0	0	0	1	1	2
AB	40th Avenue NE	800' point and NE 82nd St	E	3	0	0	0	3	3	0	0	2	1	1	1
AC	42nd Avenue NE	800' point and NE 82nd St	W	4	0	0	0	4	4	1	1	1	0	2	1
AD	42nd Avenue NE	800' point and NE 82nd St	E	3	0	0	0	3	3	1	3	3	4	3	1
AE	43rd Avenue NE	800' point and NE 82nd St	W	4	0	0	0	4	4	1	1	2	2	1	1
AF	43rd Avenue NE	800' point and NE 82nd St	E	4	0	0	0	4	4	2	1	2	3	0	0
AG	NE 82nd Street	39th Ave NE and 40th Ave NE	N	6	0	0	0	6	6	1	1	2	1	0	0
AH	NE 82nd Street	39th Ave NE and 40th Ave NE	S	4	0	0	0	4	4	1	1	2	1	2	1
AI	NE 82nd Street	40th Ave NE and 41st Ave NE	N	6	0	0	0	6	6	2	2	2	2	3	2
AJ	NE 82nd Street	40th Ave NE and 42nd Ave NE	S	11	0	0	0	11	11	3	2	5	4	4	4
AK	NE 82nd Street	41st Ave NE and 42nd Ave NE	N	6	0	0	0	6	6	0	0	0	0	0	0
AL	NE 82nd Street	42nd Ave NE and 43rd Ave NE	N	6	0	0	0	6	6	1	0	0	0	0	0
AM	NE 82nd Street	42nd Ave NE and 43rd Ave NE	S	4	0	0	0	4	4	0	0	0	0	0	0
AN	44th Avenue NE (upper-section)	43rd Ave NE and 43rd Ave NE	N	0	0	0	0	0	0	0	0	0	0	0	0
AO	44th Avenue NE (upper-section)	43rd Ave NE and 43rd Ave NE	S	2	0	0	0	2	2	1	0	1	1	1	1
AP	38th Avenue NE	800' point and NE 80th St	W	6	0	0	0	6	6	2	0	4	5	4	1
AQ	38th Avenue NE	800' point and NE 80th St	E	7	0	0	0	7	7	1	1	5	2	2	1
AR	39th Avenue NE	NE 82nd St and NE 80th St	W	14	0	0	0	14	14	5	3	9	9	10	5
AS	39th Avenue NE	NE 82nd St and NE 80th St	E	18	0	0	0	18	18	4	7	7	9	4	3
AT	40th Avenue NE	NE 82nd St and NE 80th St	W	13	0	0	0	13	13	3	1	10	11	8	8
AU	40th Avenue NE	NE 82nd St and NE 80th St	E	16	0	0	0	16	16	4	3	10	10	9	7
AV	41st Avenue NE	Dead end and NE 80th St	W	13	0	0	0	13	13	4	3	8	8	6	3
AW	41st Avenue NE	Dead end and NE 80th St	E	12	0	0	0	12	12	2	2	7	6	6	4
AX	42nd Avenue NE	NE 82nd St and NE 80th St	W	20	0	0	0	20	20	4	7	8	10	7	7
AY	42nd Avenue NE	NE 82nd St and NE 80th St	E	16	0	0	0	16	16	4	5	9	13	8	8
AZ	43rd Avenue NE	NE 82nd St and NE 80th St	W	16	0	0	0	16	16	0	0	2	3	3	1
BA	43rd Avenue NE	NE 82nd St and NE 80th St	E	17	0	0	0	17	17	1	1	4	4	3	1
BB	44th Avenue NE (mid-section)	43rd Ave NE and 43rd Ave NE	W	0	0	0	0	0	0	0	0	0	0	0	0
BC	44th Avenue NE (mid-section)	43rd Ave NE and 43rd Ave NE	E	9	0	0	0	9	9	2	2	4	5	2	4
BD	44th Avenue NE (lower-section)	43rd Ave NE and 43rd Ave NE	N	3	0	0	0	3	3	0	0	0	0	0	0
BE	44th Avenue NE (lower-section)	43rd Ave NE and 43rd Ave NE	S	0	0	0	0	0	0	0	0	0	0	0	0
BF	44th Avenue NE	Dead end and NE 80th St	W	7	0	0	0	7	7	3	4	5	6	3	1
BG	44th Avenue NE	Dead end and NE 80th St	E	8	0	0	0	8	8	2	4	0	0	0	0

Thornton Creek Elementary Parking Summary of Supply and Demand Count

Block Face ID	Street Name	Street Segment	Side of Street	Parking Supply						Parking Demand					
				Number of Unrestricted Parallel Parking Spaces	Number of Unrestricted Angle Parking Spaces	School Bus Only 8 am - 4 pm	School Bus Only 8 - 10 AM 2 - 4 PM	Total Legal On-Street Spaces Between 10 am - 2 pm	Total Legal On-Street Spaces Before 8:00 am and After 4:00 pm	Mid-Morning Counts 10:00 - 11:00 am		Evening Counts 8:30 - 9:45 pm		Weekend Counts	
										Tuesday 09.17.13	Wednesday 09.18.13	Tuesday 09.17.13	Wednesday 09.18.13	Sunday 09.22.13 11:30 am-12:30 pm	Saturday 09.28.13 11:00 am-12:00 pm
BH	45th Avenue NE	800' point and NE 80th St	E	4	0	0	0	4	4	0	0	0	0	0	0
BI	NE 80th Street	37th Ave NE and 38th Ave NE	N	0	0	0	0	0	0	0	0	0	0	0	0
BJ	NE 80th Street	37th Ave NE and 38th Ave NE	S	0	0	0	0	0	0	0	0	0	0	0	0
BK	NE 80th Street	38th Ave NE and 39th Ave NE	N	2	0	0	0	2	2	1	1	1	1	1	1
BL	NE 80th Street	38th Ave NE and 39th Ave NE	S	0	0	0	0	0	0	0	0	0	0	0	0
BM	NE 80th Street	39th Ave NE and 40th Ave NE	N	3	0	0	0	3	3	0	1	2	3	2	1
BN	NE 80th Street	39th Ave NE and 40th Ave NE	S	0	0	0	0	0	0	0	0	1	1	0	0
BO	NE 80th Street	40th Ave NE and 41st Ave NE	N	7	0	0	0	7	7	0	0	0	0	0	0
BP	NE 80th Street	40th Ave NE and 43rd Ave NE	S	12	16	0	0	28	28	2	1	0	0	1	0
BQ	NE 80th Street	41st Ave NE and 42nd Ave NE	N	8	0	0	0	8	8	0	0	0	0	0	0
BR	NE 80th Street	42nd Ave NE and 43rd Ave NE	N	8	0	0	0	8	8	2	1	0	0	0	0
BS	NE 80th Street	43rd Ave NE and 44th Ave NE	N	6	0	0	0	6	6	0	0	0	1	1	0
BT	NE 80th Street	43rd Ave NE and 44th Ave NE	S	8	0	0	0	8	8	1	1	1	0	1	1
BU	NE 80th Street	44th Ave NE and 45th Ave NE	N	8	0	0	0	8	8	0	0	0	0	0	0
BV	NE 80th Street	44th Ave NE and 45th Ave NE	S	7	0	0	0	7	7	1	1	2	2	4	2
BW	38th Avenue NE	NE 80th St and NE 77th St	W	15	0	0	0	15	15	6	5	8	8	7	9
BX	38th Avenue NE	NE 80th St and NE 77th St	E	12	0	0	0	12	12	5	4	3	2	4	4
BY	39th Avenue NE	NE 80th St and NE 77th St	W	18	0	0	0	18	18	4	7	8	4	3	5
BZ	39th Avenue NE	NE 80th St and NE 77th St	E	17	0	0	0	17	17	3	0	4	4	5	1
CA	40th Avenue NE	NE 80th St and NE 77th St	W	11	0	0	0	11	11	0	0	0	0	0	1
CB	40th Avenue NE	NE 80th St and NE 77th St	E	21	0	0	0	21	21	0	0	0	0	0	0
CC	43rd Avenue NE	NE 80th St and NE 77th St	W	0	0	0	25	25	25	0	0	0	0	1	4
CD	43rd Avenue NE	NE 80th St and NE 77th St	E	15	0	0	0	15	15	5	4	2	1	2	0
CE	44th Avenue NE	NE 80th St and NE 77th St	W	19	0	0	0	19	19	2	6	8	8	6	8
CF	44th Avenue NE	NE 80th St and NE 77th St	E	18	0	0	0	18	18	3	2	5	3	0	3
CG	45th Avenue NE	NE 80th St and NE 77th St	W	19	0	0	0	19	19	6	5	5	6	3	7
CH	45th Avenue NE	NE 80th St and NE 77th St	E	50	0	0	0	50	50	0	0	0	0	0	1
CI	NE 77th Street	37th Ave NE and 38th Ave NE	N	4	0	0	0	4	4	1	1	2	3	4	4
CJ	NE 77th Street	37th Ave NE and 39th Ave NE	S	15	0	0	0	15	15	8	10	12	13	11	7
CK	NE 77th Street	38th Ave NE and 39th Ave NE	N	0	0	0	0	0	0	0	0	0	0	0	0
CL	NE 77th Street	39th Ave NE and 40th Ave NE	N	3	0	0	0	3	3	1	0	0	1	1	0
CM	NE 77th Street	39th Ave NE and 40th Ave NE	S	4	0	0	0	4	4	2	3	3	3	2	1
CN	NE 77th Street	40th Ave NE and 43rd Ave NE	N	20	0	10	0	20	30	2	3	1	0	0	0

Thornton Creek Elementary Parking Summary of Supply and Demand Count

Block Face ID	Street Name	Street Segment	Side of Street	Parking Supply						Parking Demand					
				Number of Unrestricted Parallel Parking Spaces	Number of Unrestricted Angle Parking Spaces	School Bus Only 8 am - 4 pm	School Bus Only 8 - 10 AM 2 - 4 PM	Total Legal On-Street Spaces Between 10 am - 2 pm	Total Legal On-Street Spaces Before 8:00 am and After 4:00 pm	Mid-Morning Counts 10:00 - 11:00 am		Evening Counts 8:30 - 9:45 pm		Weekend Counts	
										Tuesday 09.17.13	Wednesday 09.18.13	Tuesday 09.17.13	Wednesday 09.18.13	Sunday 09.22.13 11:30 am-12:30 pm	Saturday 09.28.13 11:00 am-12:00 pm
CO	NE 77th Street	40th Ave NE and 41st Ave NE	S	9	0	0	0	9	9	1	1	1	1	0	0
CP	NE 77th Street	41st Ave NE and 42nd Ave NE	S	5	0	0	0	5	5	3	3	3	3	3	3
CQ	NE 77th Street	42nd Ave NE and 43rd Ave NE	S	8	0	0	0	8	8	2	2	1	1	1	2
CR	NE 77th Street	43rd Ave NE and 44th Ave NE	N	5	0	0	0	5	5	2	1	0	0	0	0
CS	NE 77th Street	43rd Ave NE and 44th Ave NE	S	5	0	0	0	5	5	3	3	2	2	1	2
CT	NE 77th Street	44th Ave NE and 45th Ave NE	N	7	0	0	0	7	7	0	1	0	0	1	1
CU	NE 77th Street	44th Ave NE and 45th Ave NE	S	9	0	0	0	9	9	0	0	0	0	0	1
CV	39th Avenue NE	NE 77th St and NE 75th St	W	25	0	0	0	25	25	15	12	25	25	18	22
CW	39th Avenue NE	NE 77th St and NE 75th St	E	14	0	0	0	14	14	12	10	17	17	13	12
CX	40th Avenue NE	NE 77th St and NE 75th St	W	18	0	0	0	18	18	4	5	3	2	3	4
CY	40th Avenue NE	NE 77th St and NE 75th St	E	8	0	0	0	8	8	3	0	5	4	5	7
CZ	41st Avenue NE	NE 77th St and NE 75th St	W	15	0	0	0	15	15	0	0	2	1	0	0
DA	41st Avenue NE	NE 77th St and NE 75th St	E	13	0	0	0	13	13	1	0	0	0	1	0
DB	42nd Avenue NE	NE 77th St and NE 75th St	W	11	0	0	0	11	11	2	3	4	5	2	0
DC	42nd Avenue NE	NE 77th St and NE 75th St	E	13	0	0	0	13	13	3	4	5	5	3	3
DD	43rd Avenue NE	NE 77th St and NE 75th St	W	11	0	0	0	11	11	6	5	3	5	2	4
DE	43rd Avenue NE	NE 77th St and NE 75th St	E	12	0	0	0	12	12	4	4	5	7	5	5
DF	44th Avenue NE	NE 77th St and NE 75th St	W	14	0	0	0	14	14	6	3	9	8	5	8
DG	44th Avenue NE	NE 77th St and NE 75th St	E	14	0	0	0	14	14	3	2	6	6	5	3
DH	45th Avenue NE	800' point and NE 77th St	W	5	0	0	0	5	5	0	0	0	0	0	0
DI	NE 75th Street	39th Ave NE and 40th Ave NE	N	8	0	0	0	8	8	0	0	0	0	0	0
DJ	NE 75th Street	39th Ave NE and 40th Ave NE	S	9	0	0	0	9	9	0	0	0	0	0	0
DK	NE 75th Street	40th Ave NE and 41st Ave NE	N	6	0	0	0	6	6	0	0	2	0	2	1
DL	NE 75th Street	40th Ave NE and 41st Ave NE	S	10	0	0	0	10	10	2	3	4	3	2	4
DM	NE 75th Street	41st Ave NE and 42nd Ave NE	N	4	0	0	0	4	4	0	0	0	0	0	0
DN	NE 75th Street	42nd Ave NE and 800' point	S	9	0	0	0	9	9	0	0	3	1	1	2
DO	NE 75th Street	42nd Ave NE and 43rd Ave NE	N	10	0	0	0	10	10	0	0	0	0	0	1
DP	NE 75th Street	43rd Ave NE and 44th Ave NE	N	5	0	0	0	5	5	0	0	1	1	0	2
DQ	40th Avenue NE	NE 75th St and 800' point	W	3	0	0	0	3	3	2	2	3	2	3	2
DR	40th Avenue NE	NE 75th St and 800' point	E	2	0	0	0	2	2	2	2	2	2	1	3
TOTAL				883	16	10	25	924	934	186	177	288	286	229	220

Thornton Creek Elementary Parking Summary of Average Demand and Utilization

Block Face ID	Street Name	Street Segment	Side of Street	Parking Supply						Average Parking Demand			Average Parking Utilization		
				Number of Unrestricted Parallel Parking Spaces	Number of Unrestricted Angle Parking Spaces	School Bus Only 8 am - 4 pm	School Bus Only 8 - 10 AM 2 - 4 PM	Total Legal On-Street Spaces Between 10 am - 2 pm	Total Legal On-Street Spaces Before 8:00 am and After 4:00 pm	Mid-Morning	Evening	Weekend	Mid-Morning	Evening	Weekend
AA	40th Avenue NE	800' point and NE 82nd St	W	4	0	0	0	4	4	0	1	2	0%	25%	50%
AB	40th Avenue NE	800' point and NE 82nd St	E	3	0	0	0	3	3	0	2	1	0%	67%	33%
AC	42nd Avenue NE	800' point and NE 82nd St	W	4	0	0	0	4	4	1	1	2	25%	25%	50%
AD	42nd Avenue NE	800' point and NE 82nd St	E	3	0	0	0	3	3	2	4	2	67%	133%	67%
AE	43rd Avenue NE	800' point and NE 82nd St	W	4	0	0	0	4	4	1	2	1	25%	50%	25%
AF	43rd Avenue NE	800' point and NE 82nd St	E	4	0	0	0	4	4	2	3	0	50%	75%	0%
AG	NE 82nd Street	39th Ave NE and 40th Ave NE	N	6	0	0	0	6	6	1	2	0	17%	33%	0%
AH	NE 82nd Street	39th Ave NE and 40th Ave NE	S	4	0	0	0	4	4	1	2	2	25%	50%	50%
AI	NE 82nd Street	40th Ave NE and 41st Ave NE	N	6	0	0	0	6	6	2	2	3	33%	33%	50%
AJ	NE 82nd Street	40th Ave NE and 42nd Ave NE	S	11	0	0	0	11	11	3	5	4	27%	45%	36%
AK	NE 82nd Street	41st Ave NE and 42nd Ave NE	N	6	0	0	0	6	6	0	0	0	0%	0%	0%
AL	NE 82nd Street	42nd Ave NE and 43rd Ave NE	N	6	0	0	0	6	6	1	0	0	17%	0%	0%
AM	NE 82nd Street	42nd Ave NE and 43rd Ave NE	S	4	0	0	0	4	4	0	0	0	0%	0%	0%
AN	44th Avenue NE (upper-section)	43rd Ave NE and 43rd Ave NE	N	0	0	0	0	0	0	0	0	0	NS	NS	NS
AO	44th Avenue NE (upper-section)	43rd Ave NE and 43rd Ave NE	S	2	0	0	0	2	2	1	1	1	50%	50%	50%
AP	38th Avenue NE	800' point and NE 80th St	W	6	0	0	0	6	6	1	5	3	17%	83%	50%
AQ	38th Avenue NE	800' point and NE 80th St	E	7	0	0	0	7	7	1	4	2	14%	57%	29%
AR	39th Avenue NE	NE 82nd St and NE 80th St	W	14	0	0	0	14	14	4	9	8	29%	64%	57%
AS	39th Avenue NE	NE 82nd St and NE 80th St	E	18	0	0	0	18	18	6	8	4	33%	44%	22%
AT	40th Avenue NE	NE 82nd St and NE 80th St	W	13	0	0	0	13	13	2	11	8	15%	85%	62%
AU	40th Avenue NE	NE 82nd St and NE 80th St	E	16	0	0	0	16	16	4	10	8	25%	63%	50%
AV	41st Avenue NE	Dead end and NE 80th St	W	13	0	0	0	13	13	4	8	5	31%	62%	38%
AW	41st Avenue NE	Dead end and NE 80th St	E	12	0	0	0	12	12	2	7	5	17%	58%	42%
AX	42nd Avenue NE	NE 82nd St and NE 80th St	W	20	0	0	0	20	20	6	9	7	30%	45%	35%
AY	42nd Avenue NE	NE 82nd St and NE 80th St	E	16	0	0	0	16	16	5	11	8	31%	69%	50%
AZ	43rd Avenue NE	NE 82nd St and NE 80th St	W	16	0	0	0	16	16	0	3	2	0%	19%	13%
BA	43rd Avenue NE	NE 82nd St and NE 80th St	E	17	0	0	0	17	17	1	4	2	6%	24%	12%
BB	44th Avenue NE (mid-section)	43rd Ave NE and 43rd Ave NE	W	0	0	0	0	0	0	0	0	0	NS	NS	NS
BC	44th Avenue NE (mid-section)	43rd Ave NE and 43rd Ave NE	E	9	0	0	0	9	9	2	5	3	22%	56%	33%
BD	44th Avenue NE (lower-section)	43rd Ave NE and 43rd Ave NE	N	3	0	0	0	3	3	0	0	0	0%	0%	0%
BE	44th Avenue NE (lower-section)	43rd Ave NE and 43rd Ave NE	S	0	0	0	0	0	0	0	0	0	NS	NS	NS
BF	44th Avenue NE	Dead end and NE 80th St	W	7	0	0	0	7	7	4	6	2	57%	86%	29%
BG	44th Avenue NE	Dead end and NE 80th St	E	8	0	0	0	8	8	3	0	0	38%	0%	0%

Thornton Creek Elementary Parking Summary of Average Demand and Utilization

Block Face ID	Street Name	Street Segment	Side of Street	Parking Supply						Average Parking Demand			Average Parking Utilization		
				Number of Unrestricted Parallel Parking Spaces	Number of Unrestricted Angle Parking Spaces	School Bus Only 8 am - 4 pm	School Bus Only 8 - 10 AM 2 - 4 PM	Total Legal On-Street Spaces Between 10 am - 2 pm	Total Legal On-Street Spaces Before 8:00 am and After 4:00 pm	Mid-Morning	Evening	Weekend	Mid-Morning	Evening	Weekend
BH	45th Avenue NE	800' point and NE 80th St	E	4	0	0	0	4	4	0	0	0	0%	0%	0%
BI	NE 80th Street	37th Ave NE and 38th Ave NE	N	0	0	0	0	0	0	0	0	0	NS	NS	NS
BJ	NE 80th Street	37th Ave NE and 38th Ave NE	S	0	0	0	0	0	0	0	0	0	NS	NS	NS
BK	NE 80th Street	38th Ave NE and 39th Ave NE	N	2	0	0	0	2	2	1	1	1	50%	50%	50%
BL	NE 80th Street	38th Ave NE and 39th Ave NE	S	0	0	0	0	0	0	0	0	0	NS	NS	NS
BM	NE 80th Street	39th Ave NE and 40th Ave NE	N	3	0	0	0	3	3	1	3	2	33%	100%	67%
BN	NE 80th Street	39th Ave NE and 40th Ave NE	S	0	0	0	0	0	0	0	1	0	NS	NS	NS
BO	NE 80th Street	40th Ave NE and 41st Ave NE	N	7	0	0	0	7	7	0	0	0	0%	0%	0%
BP	NE 80th Street	40th Ave NE and 43rd Ave NE	S	12	16	0	0	28	28	2	0	1	7%	0%	4%
BQ	NE 80th Street	41st Ave NE and 42nd Ave NE	N	8	0	0	0	8	8	0	0	0	0%	0%	0%
BR	NE 80th Street	42nd Ave NE and 43rd Ave NE	N	8	0	0	0	8	8	2	0	0	25%	0%	0%
BS	NE 80th Street	43rd Ave NE and 44th Ave NE	N	6	0	0	0	6	6	0	1	1	0%	17%	17%
BT	NE 80th Street	43rd Ave NE and 44th Ave NE	S	8	0	0	0	8	8	1	1	1	13%	13%	13%
BU	NE 80th Street	44th Ave NE and 45th Ave NE	N	8	0	0	0	8	8	0	0	0	0%	0%	0%
BV	NE 80th Street	44th Ave NE and 45th Ave NE	S	7	0	0	0	7	7	1	2	3	14%	29%	43%
BW	38th Avenue NE	NE 80th St and NE 77th St	W	15	0	0	0	15	15	6	8	8	40%	53%	53%
BX	38th Avenue NE	NE 80th St and NE 77th St	E	12	0	0	0	12	12	5	3	4	42%	25%	33%
BY	39th Avenue NE	NE 80th St and NE 77th St	W	18	0	0	0	18	18	6	6	4	33%	33%	22%
BZ	39th Avenue NE	NE 80th St and NE 77th St	E	17	0	0	0	17	17	2	4	3	12%	24%	18%
CA	40th Avenue NE	NE 80th St and NE 77th St	W	11	0	0	0	11	11	0	0	1	0%	0%	9%
CB	40th Avenue NE	NE 80th St and NE 77th St	E	21	0	0	0	21	21	0	0	0	0%	0%	0%
CC	43rd Avenue NE	NE 80th St and NE 77th St	W	0	0	0	25	25	25	0	0	3	0%	0%	12%
CD	43rd Avenue NE	NE 80th St and NE 77th St	E	15	0	0	0	15	15	5	2	1	33%	13%	7%
CE	44th Avenue NE	NE 80th St and NE 77th St	W	19	0	0	0	19	19	4	8	7	21%	42%	37%
CF	44th Avenue NE	NE 80th St and NE 77th St	E	18	0	0	0	18	18	3	4	2	17%	22%	11%
CG	45th Avenue NE	NE 80th St and NE 77th St	W	19	0	0	0	19	19	6	6	5	32%	32%	26%
CH	45th Avenue NE	NE 80th St and NE 77th St	E	50	0	0	0	50	50	0	0	1	0%	0%	2%
CI	NE 77th Street	37th Ave NE and 38th Ave NE	N	4	0	0	0	4	4	1	3	4	25%	75%	100%
CJ	NE 77th Street	37th Ave NE and 39th Ave NE	S	15	0	0	0	15	15	9	13	9	60%	87%	60%
CK	NE 77th Street	38th Ave NE and 39th Ave NE	N	0	0	0	0	0	0	0	0	0	NS	NS	NS
CL	NE 77th Street	39th Ave NE and 40th Ave NE	N	3	0	0	0	3	3	1	1	1	33%	33%	33%
CM	NE 77th Street	39th Ave NE and 40th Ave NE	S	4	0	0	0	4	4	3	3	2	75%	75%	50%
CN	NE 77th Street	40th Ave NE and 43rd Ave NE	N	20	0	10	0	20	30	3	1	0	15%	3%	0%

Thornton Creek Elementary Parking Summary of Average Demand and Utilization

Block Face ID	Street Name	Street Segment	Side of Street	Parking Supply						Average Parking Demand			Average Parking Utilization		
				Number of Unrestricted Parallel Parking Spaces	Number of Unrestricted Angle Parking Spaces	School Bus Only 8 am - 4 pm	School Bus Only 8 - 10 AM 2 - 4 PM	Total Legal On-Street Spaces Between 10 am - 2 pm	Total Legal On-Street Spaces Before 8:00 am and After 4:00 pm	Mid-Morning	Evening	Weekend	Mid-Morning	Evening	Weekend
CO	NE 77th Street	40th Ave NE and 41st Ave NE	S	9	0	0	0	9	9	1	1	0	11%	11%	0%
CP	NE 77th Street	41st Ave NE and 42nd Ave NE	S	5	0	0	0	5	5	3	3	3	60%	60%	60%
CQ	NE 77th Street	42nd Ave NE and 43rd Ave NE	S	8	0	0	0	8	8	2	1	2	25%	13%	25%
CR	NE 77th Street	43rd Ave NE and 44th Ave NE	N	5	0	0	0	5	5	2	0	0	40%	0%	0%
CS	NE 77th Street	43rd Ave NE and 44th Ave NE	S	5	0	0	0	5	5	3	2	2	60%	40%	40%
CT	NE 77th Street	44th Ave NE and 45th Ave NE	N	7	0	0	0	7	7	1	0	1	14%	0%	14%
CU	NE 77th Street	44th Ave NE and 45th Ave NE	S	9	0	0	0	9	9	0	0	1	0%	0%	11%
CV	39th Avenue NE	NE 77th St and NE 75th St	W	25	0	0	0	25	25	14	25	20	56%	100%	80%
CW	39th Avenue NE	NE 77th St and NE 75th St	E	14	0	0	0	14	14	11	17	13	79%	121%	93%
CX	40th Avenue NE	NE 77th St and NE 75th St	W	18	0	0	0	18	18	5	3	4	28%	17%	22%
CY	40th Avenue NE	NE 77th St and NE 75th St	E	8	0	0	0	8	8	2	5	6	25%	63%	75%
CZ	41st Avenue NE	NE 77th St and NE 75th St	W	15	0	0	0	15	15	0	2	0	0%	13%	0%
DA	41st Avenue NE	NE 77th St and NE 75th St	E	13	0	0	0	13	13	1	0	1	8%	0%	8%
DB	42nd Avenue NE	NE 77th St and NE 75th St	W	11	0	0	0	11	11	3	5	1	27%	45%	9%
DC	42nd Avenue NE	NE 77th St and NE 75th St	E	13	0	0	0	13	13	4	5	3	31%	38%	23%
DD	43rd Avenue NE	NE 77th St and NE 75th St	W	11	0	0	0	11	11	6	4	3	55%	36%	27%
DE	43rd Avenue NE	NE 77th St and NE 75th St	E	12	0	0	0	12	12	4	6	5	33%	50%	42%
DF	44th Avenue NE	NE 77th St and NE 75th St	W	14	0	0	0	14	14	5	9	7	36%	64%	50%
DG	44th Avenue NE	NE 77th St and NE 75th St	E	14	0	0	0	14	14	3	6	4	21%	43%	29%
DH	45th Avenue NE	800' point and NE 77th St	W	5	0	0	0	5	5	0	0	0	0%	0%	0%
DI	NE 75th Street	39th Ave NE and 40th Ave NE	N	8	0	0	0	8	8	0	0	0	0%	0%	0%
DJ	NE 75th Street	39th Ave NE and 40th Ave NE	S	9	0	0	0	9	9	0	0	0	0%	0%	0%
DK	NE 75th Street	40th Ave NE and 41st Ave NE	N	6	0	0	0	6	6	0	1	2	0%	17%	33%
DL	NE 75th Street	40th Ave NE and 41st Ave NE	S	10	0	0	0	10	10	3	4	3	30%	40%	30%
DM	NE 75th Street	41st Ave NE and 42nd Ave NE	N	4	0	0	0	4	4	0	0	0	0%	0%	0%
DN	NE 75th Street	42nd Ave NE and 800' point	S	9	0	0	0	9	9	0	2	2	0%	22%	22%
DO	NE 75th Street	42nd Ave NE and 43rd Ave NE	N	10	0	0	0	10	10	0	0	1	0%	0%	10%
DP	NE 75th Street	43rd Ave NE and 44th Ave NE	N	5	0	0	0	5	5	0	1	1	0%	20%	20%
DQ	40th Avenue NE	NE 75th St and 800' point	W	3	0	0	0	3	3	2	3	3	67%	100%	100%
DR	40th Avenue NE	NE 75th St and 800' point	E	2	0	0	0	2	2	2	2	2	100%	100%	100%
TOTAL				883	16	10	25	924	934	182	287	225	20%	31%	24%