SEPA Environmental Checklist

Mercer Island Center for the Arts

Attachment O
Transportation Impact Analysis

January 2017

Transportation Impact Analysis

MERCER ISLAND CENTER FOR THE ARTS (MICA)

Prepared for:
MICA

January 2017

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Executive Summary

This section provides an executive summary of the Transportation Impact Analysis through a set of frequently asked questions (FAQs).

Where is the project located and what would be developed?

The project is adjacent to Mercerdale Park, at the SE 32nd Street/77th Avenue SE intersection in Mercer Island, Washington. Development will include a performing arts center, containing a mainstage auditorium, blackbox theater, recital studio, classrooms, and music studios. Outside the building structure, an outdoor theater, café, and plaza/drop-off area are included within the property's perimeter.

How is parking to be accommodated for the site?

It is anticipated that on-street parking and parking committed by adjacent businesses will be shared to satisfy the project parking demand, based on studies of existing supply and utilization. This approach is consistent with recommendations made in the *Town Center Parking Study* (April 2016, BERK/City of Mercer Island). Proposed changes to the town center area include the addition of on-street parking on both east and west sides of 77th Avenue SE, as well as along other roadways surrounding the site. No on-site parking is proposed for this project.

How many daily vehicular trips would the project generate and when would peak traffic volumes occur?

Based on current activity forecasts, the peak traffic volumes will occur during the weekday PM peak hour and the project will generate approximately 283 total trips with approximately 144 inbound trips and 139 outbound trips.

What transportation impacts are anticipated, if any?

Traffic generated by daytime classes and nighttime performances is not anticipated to impact levels of service on surrounding roadways and intersections. The site is not providing parking on-site and is anticipated to utilize publicly available on-street parking to accommodate daytime activities and utilize agreements with nearby businesses to share parking in the evenings for performances and activities when additional parking is needed.

What measures are proposed to reduce or control traffic impacts?

The adjacent street frontages along 77th Avenue SE and SE 32nd Street will be reconfigured to provide for a pick-up and drop-off area in front of the site, safe pedestrian crossings, and additional on-street parking. In addition, MICA is coordinating with the City to develop a Parking Management Plan.

Introduction

The purpose of this transportation impact analysis (TIA) is to evaluate transportation conditions and identify potential impacts associated with the proposed Mercer Island Center for the Arts (MICA).

Project Description

The proposed project is located adjacent to Mercerdale Park, at the SE 32nd Street/77th Avenue SE intersection. The Mercer Island Center for the Arts includes a 300-person mainstage, 100-person blackbox theater, as well as a recital studio, three classrooms, and four music stuidos. Studio and classroom activities vary in size: music studios accommodate individual students, while a classroom may fit up to 15 students at once. Outside the building structure, an outdoor theater, café, and performance plaza are included within the property's perimeter. The adjacent street frontages along 77th Avenue SE and SE 32nd Street will be reconfigured to provide for a pick-up and drop-off area in front of the site, safe pedestrian crossings, and additional on-street parking. The project site vicinity is shown in Figure 1, and the site plan is found in Figure 2.

No on-site parking is proposed for this project, and it is anticipated that on-street parking and parking available at local businesses will be shared to satisfy the project parking demand. A parking management plan has been developed to include strategies for accommodating the variety of events and activities at MICA (see MICA Parking Management Plan).

Study Area and Approach

The analysis focuses on the weekday PM peak period (one busiest hour between 4:00 and 6:00 p.m.) operations at four study intersections as coordinated with the City. This period represents the highest cumulative total traffic for the adjacent street system providing a conservative timeframe for level of service (LOS) analysis. The study intersections include (also see Figure 1):

1. 77th Avenue SE / SE 27th Street
2. 78th Avenue SE / SE 28th Street
3. Island Crest Way / SE 28th Street
4. 78th Avenue SE / SE 32nd Street

The TIA begins by describing background conditions in the site vicinity including the roadway network, existing and future (2019) weekday PM peak hour traffic volumes, traffic operations, traffic safety, non-motorized facilities, and transit. Future conditions, with the proposed project constructed and occupied, were evaluated by adding site-generated traffic to future baseline traffic volumes. Analysis of future conditions addresses cumulative impacts of the proposed project and traffic growth in the study area. Site-generated impacts are identified based on differences in transportation conditions between future with- and without-project conditions.

Site Vicinity

Mercer Island Center for the Arts (MICA)

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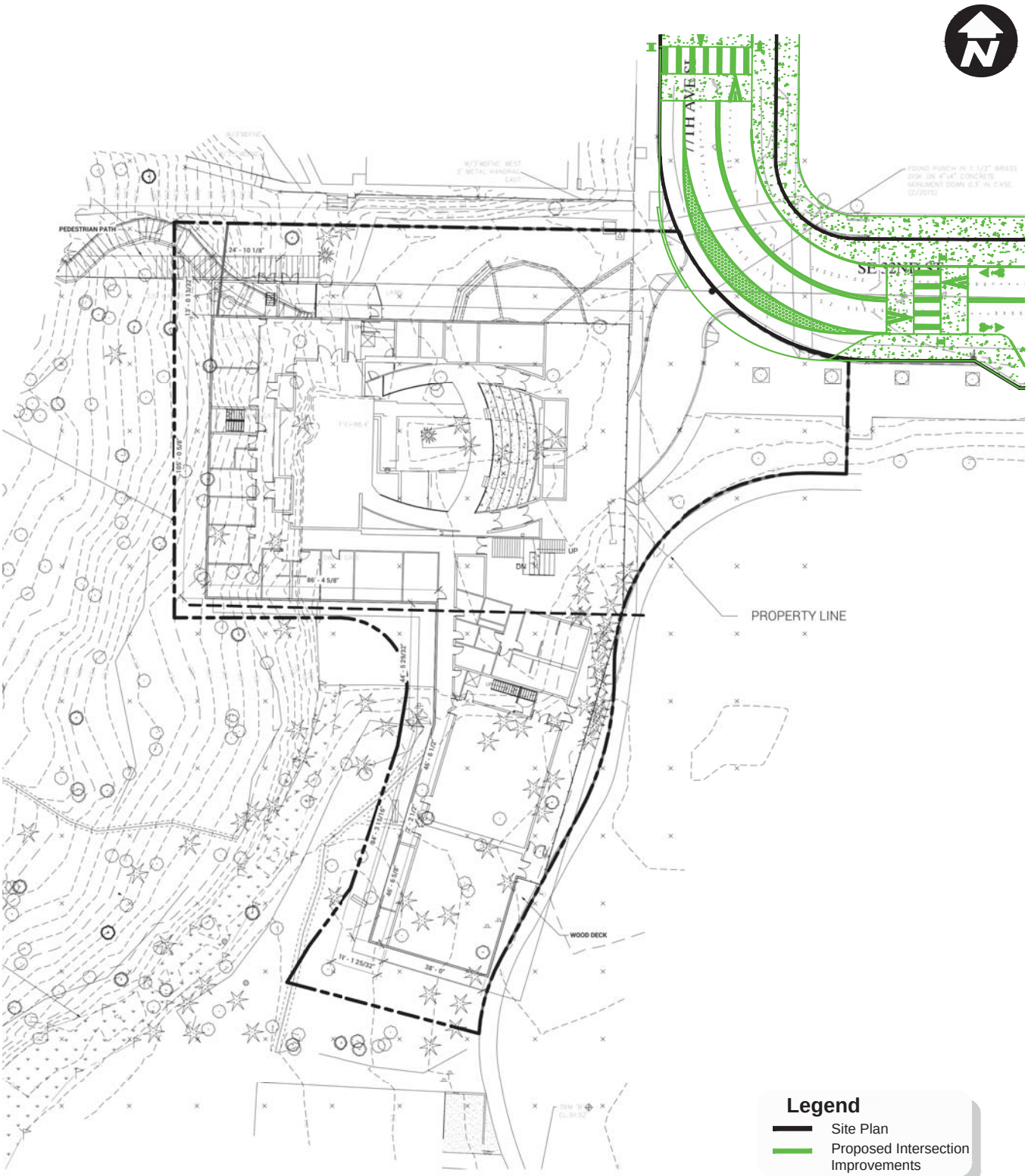

Site Plan

Mercer Island Center for the Arts (MICA)

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Existing & Future Without-Project Conditions

This section describes existing and future conditions within the identified study area without construction of the project. Characteristics are provided for the roadway network, planned roadway improvements, non-motorized facilities, transit service, existing and future without-project traffic volumes, traffic operations, and traffic safety.

Roadway Network

The project site is located in north Mercer Island, adjacent to the bottom of the Town Center area, and is bound by 77th Avenue SE to the east and SE 32nd Street to the north. Mercerdale Park acts as a boundary to the south and west of the site. The major roadways within the study area include:

77th Avenue SE is a three-lane roadway classified as a secondary arterial with sidewalks and a center two-way left-turn lane and bike lanes. This north-south roadway serves as a connection between the Mercer Island town center area and Interstate 90 (I-90). The posted speed limit is 25 miles per hour (mph).

78th Avenue SE is a two-lane north-south roadway classified as a collector arterial with sidewalks and a raised median. This roadway provides north-south access within the town center area. The posted speed limit is 25 mph.

SE 27th Street is a three-lane east-west roadway with sidewalks and a center two-way left-turn lane. The roadway is classified as a secondary arterial and provides east-west access within the town center area. The posted speed limit is 25 mph.

SE 28th Street is a two-lane roadway with sidewalks. This roadway provides east-west access within the town center area. The posted speed limit is 25 mph.

SE 32nd Street is an east-west secondary arterial with sidewalks. The road provides one lane in each direction and a center two-way left-turn lane. Access to the project site would be via the 77th Avenue SE/ SE 32nd Street intersection. The posted speed limit is 25 mph.

Island Crest Way is a five-lane roadway classified as a primary arterial. This north-south roadway serves as one of the primary accesses to and from I-90, especially to reach areas east of the project site. Island Crest Way also serves as a primary access to southern Mercer Island neighborhoods. The posted speed limit is 35 mph.

Planned Roadway Improvements

Based on a review of the City's recently-completed Town Center Development and Design Standards Section 19.11.120, future improvements by the City include narrowing 77th Avenue SE and adding on-street parking to both sides. In addition, the planned 2019 resurfacing program will repave 80th Avenue from SE 28th Street to SE 32nd Street, SE 32nd Street from 80th Avenue SE to 78th Avenue SE, and SE 29th Street from 76th Avenue SE to 77th Avenue SE. The resurfacing program will also repair sidewalks and upgrade sidewalk ramps to meet ADA requirements.

Non-Motorized Facilities

Sidewalks are provided along all of the nearby streets with crosswalks located at major intersections allowing safe pedestrian mobility throughout the area. Signalized crossings are provided at the 77th Avenue SE/SE 27th Street and Island Crest Way/SE 28th Street

intersections. Unsignalized pedestrian crossings are provided at the 78th Avenue SE/SE 32nd Street and 78th Avenue SE/SE 28th Street intersections. Pedestrian routes to the project site are clearly marked and accessible from all directions.

Transit Service

Three nearby transit stops are within walking distance from the project site. These stops are located at the southwest and northeast corners of the 78th Avenue SE/SE 32nd Street intersection, as well as at the Island Crest Way/SE 32nd Street intersection. Six transit routes access these stops, providing service throughout the King County area, primarily to Mercer Island and Seattle. The service areas, operating hours, and headways for these routes are summarized in Table 1.

Table 1. Existing Transit Service[1]

Routes	Area Served	Approximate Operating Hours	PM Peak Vehicle Trips		PM Peak Headways (minutes)
			Eastbound	Westbound	
201	Downtown Seattle – Mercer Island Park & Ride	7:00 a.m. to 8:30 a.m. 6:00 p.m. to 7:00 p.m.	1	1	40-60
204	Downtown Seattle – Mercer Island	6:00 a.m. to 7:30 p.m.	2	2	30
630	Downtown Seattle – Mercer Island	6:00 a.m. to 9:00 a.m. 4:00 p.m. to 7:30 p.m.	2	0	30
891, 892	Mercer Island – Mercer Island High School	7:00 a.m. to 8:00 a.m. 2:00 p.m. to 4:00 p.m.	1	1	60
894	Mercer Village Shopping Center – Mercer Island High School	7:00 a.m. to 8:00 a.m. 2:00 p.m. to 4:00 p.m.	1	1	60
		Total	**7**	**5**	30-60

1. Based on data provided by, King County Metro Transit (April 2016).

As shown in the table, most of the service is provided to Downtown Seattle and other areas of Mercer Island. Headways range from 30-60 minutes.

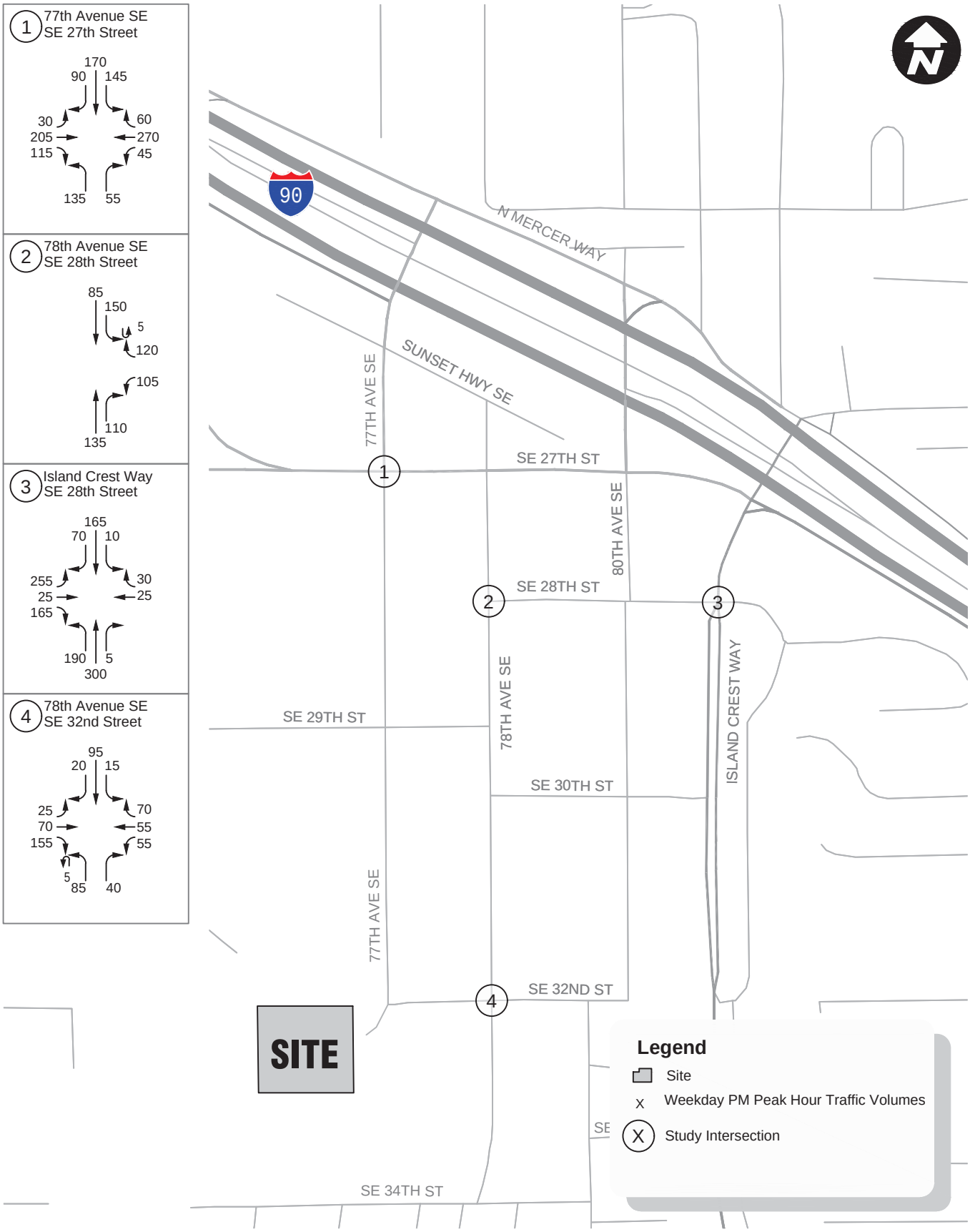
Traffic Volumes

Existing Conditions

This transportation analysis focuses on the weekday PM peak hour when traffic volumes would be greatest. Existing turning movement counts at the study intersections were counted in April 2016. The detailed intersection turning movement traffic volumes are provided in Appendix A. Existing weekday PM peak hour traffic volumes are summarized in Figure 3 and were used to establish existing traffic conditions.

Future Traffic Volume Forecasts

Future (2019) without-project traffic volumes were forecasted using an annual background growth rate of 0.5 percent. These volumes were forecasted using the information from the City of Mercer Island's background growth rate for areas outside the Town Center boundary, as defined by the City of Mercer Island Comprehensive Plan. Project trips from the known pipeline development, Keeler Mixed Use (The Hadley), were also applied. Future (2019) without-project traffic volumes are shown in Figure 4.



Existing (2016) Weekday PM Peak Hour Volumes

FIGURE 3

Mercer Island Center for the Arts (MICA)

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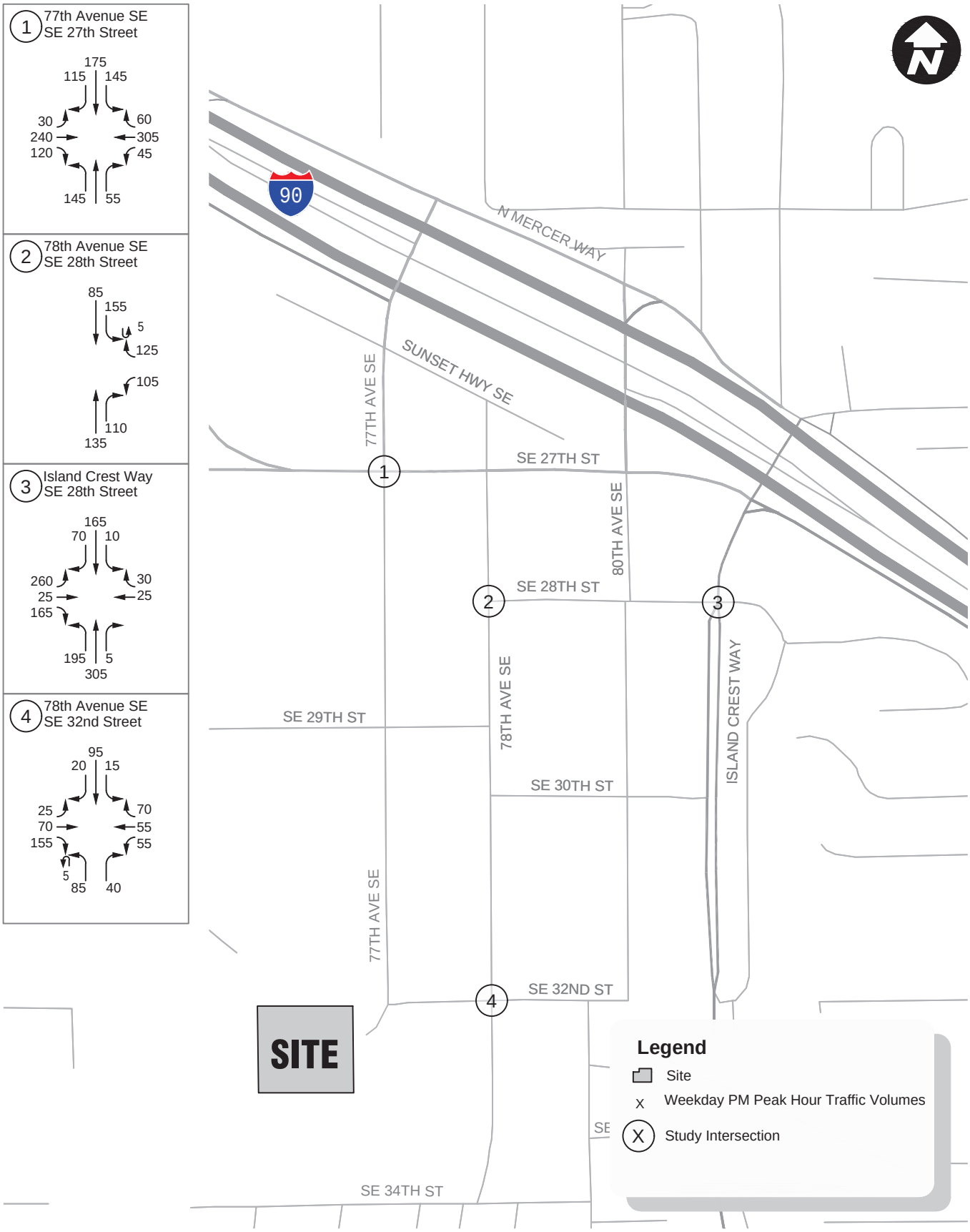

Future (2019) Without-Project Weekday PM Peak Hour Volumes

FIGURE 4

Mercer Island Center for the Arts (MICA)

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Traffic Operations

PM peak hour traffic operations were evaluated at the study intersections based on level of service (LOS). The LOS analysis method was based on procedures identified in the *Highway Capacity Manual* (2010), and evaluated using Synchro version 9.0.

At signalized intersections, LOS is measured in average control delay per vehicle and is typically reported using the intersection delay and volume-to-capacity ratio (V/C). At stop-sign-controlled intersections, LOS is measured in delay per vehicle. Traffic operations for an intersection can be described alphabetically with a range of levels of service (LOS A through F), with LOS A indicating free-flowing traffic and LOS F indicating extreme congestion and long vehicle delays. Appendix B contains a detailed explanation of LOS criteria and definitions.

Based on the Transportation Element of the City's Comprehensive Plan (2005), the City has adopted an LOS D standard within the city boundary. Washington State Department of Transportation (WSDOT) has set an LOS D standard. Table 2 summarizes the existing and future (2019) without-project weekday PM peak hour LOS at study intersections. The detailed LOS worksheets are included in Appendix C.

Table 2. Existing and Future (2019) Without-Project Weekday PM Peak Hour Level of Service

		2016 Existing			2019 Without-Project		
Intersections	**Jurisdiction**	**LOS[1]**	**Delay[2]**	**WM[3]**	**LOS[1]**	**Delay[2]**	**WM[3]**
1. 77th Avenue SE / SE 27th Street	Mercer Island	B	15.9	-	B	17.2	-
2. 78th Avenue SE / SE 28th Street	Mercer Island	B	11.1	SB	B	11.3	SB
3. Island Crest Way / SE 28th Street	WSDOT	C	20.7	-	C	21.0	-
4. 78th Avenue SE / SE 32nd Street	Mercer Island	B	12.3	EB	B	12.3	EB

1. Level of service (LOS), based on 2010 *Highway Capacity Manual* methodology.
2. Average delay in seconds per vehicle.
3. Worst movement reported for unsignalized intersections where EB = eastbound and SB = southbound

As shown in Table 2, all study intersections currently operate at LOS C or better during the weekday PM peak hour, meeting the respective City and WSDOT LOS standards. Under future without-project conditions, all intersections continue to meet the respective City and WSDOT standards, operating at LOS C or better. Increases in delay between existing and 2019 without-project conditions are approximately one second or less at all study intersections.

Traffic Safety

WSDOT provided the collision data for the most recent three-year period for intersections and roadway segments within the study area. Specifically, the data was summarized between January 1, 2013 and December 31, 2015. Table 3 provides a summary of collision history within the study area.

Table 3. Three-Year Collision Summary – 2013 to 2015

Location	Number of Collisions			Total	Annual Average	Collisions per MEV[1]
	2013	2014	2015			
1. 77th Avenue SE/ SE 27th Street	1	3	3	7	2.3	0.46
2. 78th Avenue SE/ SE 28th Street	0	0	3	3	1.0	0.39
3. Island Crest Way/ SE 28th Street	0	0	0	0	0.0	0.00
4. 78th Avenue SE/ SE 32nd Street	1	2	1	4	1.3	0.43

Source: WSDOT and Transpo Group, 2016
1. Million Entering Vehicles

Within the analysis time period, the highest number of collisions occurred at the 77th Avenue SE/ SE 27th Street intersection with an average of 2.3 collisions per year. The other study intersections experienced on average between 0 and 2 collisions per year. No fatalities or bicyclist collisions were reported at a study intersection; however, one pedestrian collision occurred at the 77th Avenue SE/SE 27th Street intersection. The collision was the result of driver inattention, as a pedestrian was hit when a vehicle turned right from westbound SE 27th Street onto southbound 77th Avenue SE. The most common collision type during the three-year period was an angle collision.

By incorporating the traffic volume at the intersection, the rate of collisions per million entering vehicles (MEV) allows a uniform standard for evaluating accident history. Generally, a collision rate at intersections greater than 1.0 collision per MEV is considered higher than normal. Based on this threshold, there were no safety issues identified at the study intersections.

Project Impacts

This section of the analysis documents project-generated impacts on the surrounding roadway network and at the study intersections. First, peak hour traffic volumes are estimated, distributed, and assigned to adjacent roadways and intersection within the study area. Next, 2019 volumes are projected and potential impact to traffic volumes, traffic operations and non-motorized facilities are identified.

Project Trip Generation

Project trip generation estimates were developed for the project based on assumptions consistent with MICA's intended use as a performing arts center. Trips were calculated using methodology found in *Federal Way Performing Arts & Conference Center – Traffic & Parking Study*[1]. The 41,000 square foot Federal Way (WA) Performing Arts & Conference Center includes a 700-seat auditorium and 8,000 square feet of additional conference space, as well as an outdoor plaza area. The event space is designed to accommodate music and dance performances, seminars, and local or regional meetings. Based on similarities in size and uses between the two venues, the trip generation methodology was also applied to MICA. The Federal Way Performing Arts & Conference Center study relies on average vehicle occupancy (AVO) rates from surveys conducted at Seattle's McCaw Hall[2]. The following sections summarize the preliminary trip generation methodology and estimate for the proposed use.

Activity Forecasts

Two forecasts, Typical Activity and Peak Activity, were evaluated to estimate trip generation and parking demand based on utilization and room capacities of the performing arts center. Each scenario was evaluated for weekday (Monday-Thursday), Friday, and Saturday forecast schedules. The two forecasts account for multiple activities taking place at the performing arts center during the same time period. Activity forecasts and expected class sizes for both typical and peak activity were developed through coordination with MICA and its tenants. The forecasts are outlined below. Detailed assumptions regarding activity forecasts and trips generated are included in Appendix D.

1. **Typical Activity:** The Typical Activity scenario represents the majority of the facility's use. All classes and rehearsals are assumed 100 percent attendance from performers. Performances assumed 75 percent attendance from audience members. All performances are anticipated to be 2 hours in length, while classes range from 60 to 90 minutes.

    - Weekday (Monday-Thursday) activity: Weekday activity includes an evening mainstage performance, as well as evening classroom or recital studio events. Morning and mid-day classroom events at 100 percent capacity are also included in this scenario. Classes occur throughout the day, with approximately 60 to 90-minute classes between 10:00 am and 9:00 p.m. Class start and dismissal times are staggered at 15-minute intervals. The majority of classroom events occur during the afternoon, between approximately 3:00 p.m. and 8:00 p.m., but can also occur during morning hours or throughout the day. A rehearsal in the blackbox venue is anticipated

[1] Memorandum – *Federal Way Performing Arts & Conference Center – Traffic & Parking Study*, K. Jones to P. Doherty (September 23, 2014).

[2] Memorandum – *Kirkland Resource Library and Performing Arts Center Draft Environmental Impact Statement – Transportation and Parking Analysis,* The Transpo Group to Huckell/Weinman Associates Inc. and The City of Kirkland (February 4, 1991).

to occur between 6:00 p.m. and 9:00 p.m, concurrently with the 7:00 p.m. mainstage performance.

- Friday activity: Friday activity is similar to mid-week activity schedule, including classes and an evening performance. Class start and dismissal times are staggered at 15-minute intervals. Classes are anticipated to conclude by 6:00 p.m, with the mainstage performance starting at 7:00 p.m. No blackbox venue activity is anticipated to occur concurrently with the mainstage performance.

- Saturday activity: Saturday activity includes additional classes during the morning and mid-day hours, as well as an evening performance. Classes would begin in all venues (excluding the mainstage) at approximately 9:00 a.m. and would conclude between 5:00 p.m. and 6:30 p.m. Class start and dismissal times are staggered at 15-minute intervals. The mainstage performance would begin at 7:00 p.m.

2. **Peak Activity**: The Peak Activity scenario includes performance and classroom events listed above in the Typical Activity scenario, as well as an additional evening performance in the blackbox theater on Friday and Saturday. Most evening performances in this scenario would be sold out or at 100 percent audience capacity. It is expected that this Peak Activity scenario would occur only a few nights per year.

    - Weekday (Monday-Thursday activity): Weekday activity for the Peak Activity scenario mirrors the Typical Activity weekday scenario described above; however, the Peak Activity weekday evening performance includes 100 percent audience capacity.

    - Friday activity: The Peak Activity Friday schedule mirrors the Typical Activity Friday scenario described above; however, the Peak Activity includes an additional evening performance in the blackbox venue occurring concurrently with the mainstage performance. Both performances include 100 percent audience capacity.

    - Saturday activity: The Peak Activity Saturday schedule mirrors the Typical Activity Saturday scenario described above; however, the Peak Activity includes an additional evening performance in the blackbox venue occurring concurrently with the mainstage performance. The blackbox performance includes 100 percent audience capacity while the mainstage performance includes 75 percent audience capacity. Classes would conclude by 6:00 p.m. in this scenario to accommodate the additional performance.

Performance Capacity and AVO

A Typical Activity and Peak Activity performance capacity were estimated to account for differences between audiences in the center's mainstage venue. These assumptions were conservative, considering an average performance is only anticipated to reach 75 percent audience capacity. AVO values of 2.2 persons per vehicle are consistent with the *Federal Way Performing Arts & Conference Center – Traffic & Parking Study* and were assumed for staff, performers, and audience of evening performances at each venue. For daytime classes and rehearsals, AVO value of 1.0 persons per vehicle was assumed for staff of the classrooms and studios. The performers and students in the recital studio and classrooms were assumed to be younger than driving age and transported to/from MICA by a parent or chaperone. Adult performers in daytime classes were assumed to drive themselves and park for the duration of class. For trip generation purposes, classroom and studio performers were assumed to have an AVO of 1.0.

Non-Vehicle Trips

Small percentages of transit and walk trips were included to account for the use of nearby transit and pedestrian facilities, although the majority of generated trips are assumed to be by vehicle. The project site is connected to the Mercerdale and First Hill neighborhoods by pedestrian pathways to the south and west. King County Metro provides daytime transit service one block away on 78th Ave SE. Based on extrapolations from American Community Survey data, 5 percent transit (daytime only, not for performances) and 5 percent pedestrian/bicycle trips were included. Transit trips were not included for performance peak hours because study area transit routes are not in service directly before or after performance times. No pass-by or internal trips were assumed to be included due to the nature of the venue and its events. In practice, it is likely that youth class attendees will also arrive by bus, bicycle, or walking. Therefore, drop-off trips shown here are conservative.

Peak Hour

Trip generation was calculated for classes occurring during the weekday (Monday-Thursday) PM peak hour (the peak of the surrounding roadways and the peak of the facility) as well as for the weekday evening performances (both the Monday-Thursday Typical and Peak Activity scenarios). The weekday PM peak hour trip generation assumed 100 percent capacity for classes at that time. Pick-up and drop-off trips occurring around class and rehearsal times were included in trip generation calculations. For evening performances, trip generation was carried out for both Typical Activity and Peak Activity forecasts, using a peak hour of 6:00 p.m. to 7:00 p.m. These performance peak hours assume a 7:00 p.m. performance start time based on coordination with MICA. The traffic impact assessment evaluated the peak hour during 4:00 p.m. to 6:00 p.m. The performance peak hour (6:00 to 7:00 p.m.) trip generation was used for parking accommodation. Additional traffic was expected for on-street parking circulation near the project site.

Table 4 summarizes the project's estimated trip generation for the weekday PM peak hour time period and evening performance scenarios. Detailed assumptions regarding activity schedules and trips generated are included in Appendix D.

Table 4. Weekday PM Peak Hour Trip Generation

	Network PM Peak Hour (Highest 60 minutes, 4-6pm)			Performance Typical Activity Scenario Peak Hour (6-7pm)			Performance Peak Activity Scenario Peak Hour (6-7pm)		
Venue	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**
Proposed Uses									
Subtotal	315	160	155	355	229	126	388	262	126
Mode Split Reduced Trips									
Transit Trips (5%)	-16	-8	-8	-18	-12	-6	-19	-13	-6
Pedestrian & Bicycle Trips (5%)	-16	-8	-8	-18	-12	-6	-19	-13	-6
Total Proposed Trips	**283**	**144**	**139**	**319**	**205**	**114**	**350**	**236**	**114**

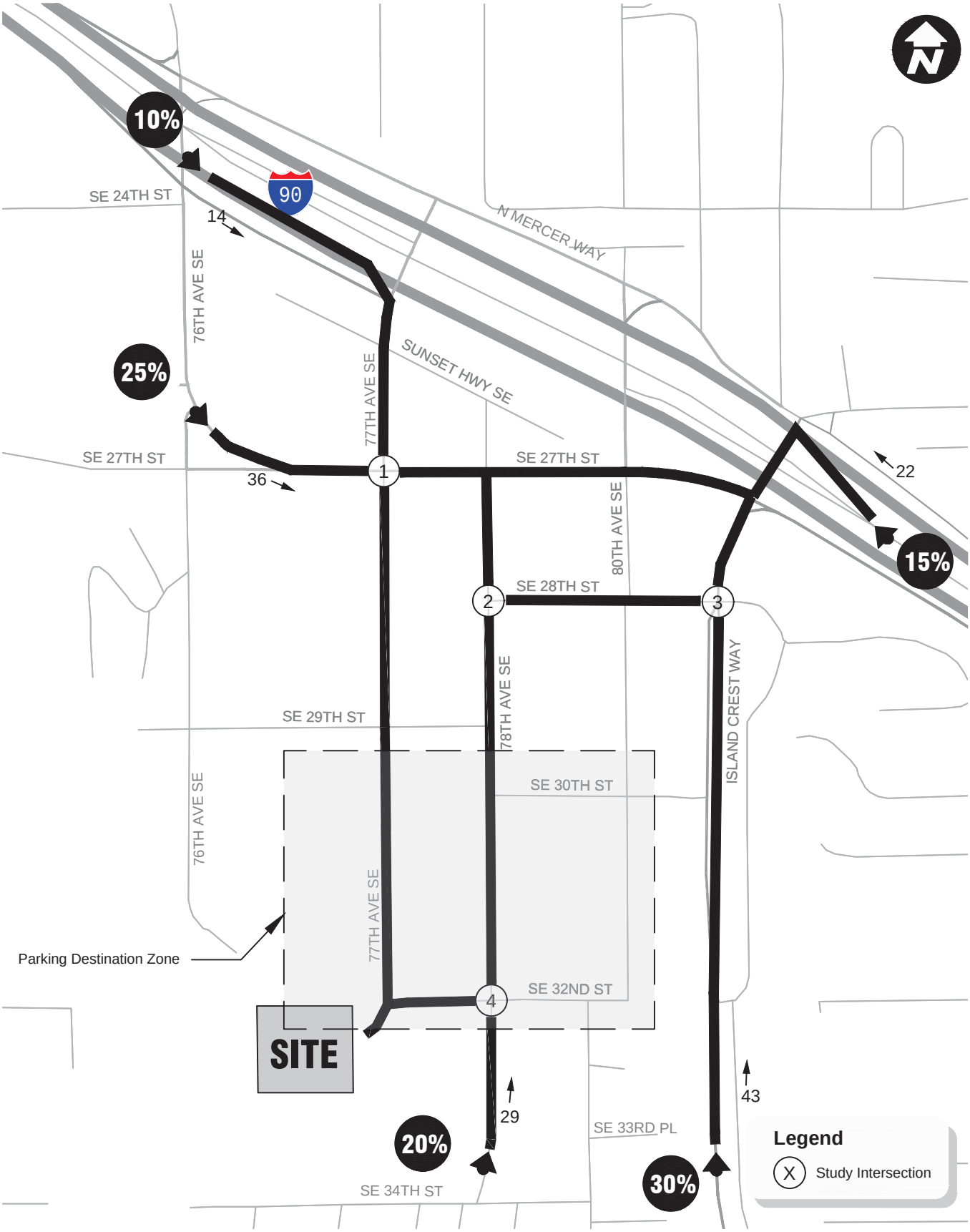
In summary, the project is anticipated to generate approximately 283 trips during the weekday PM peak hour with 144 inbound and 139 outbound. During the Typical Activity 6:00 p.m. to 7:00 p.m. hour before a performance, the project would generate approximately 319 trips, 205 inbound and 114 outbound. During the Peak Activity 6:00 p.m. to 7:00 p.m. hour before a performance, the project would generate approximately 350 trips, 236 inbound and 114 outbound.

Project Trip Distribution and Assignment

The development of the inbound and outbound trip distributions is consistent with previous studies submitted in the vicinity of the project. Distributions were developed based on travel patterns in the study area and through the scoping process with the City of Mercer Island.

It is anticipated that 75 percent of project trips would distribute throughout Mercer Island, while the remaining 25 percent of project trips would originate off-island, utilizing eastbound and westbound I-90. Based on this distribution, project trips were then proportionally assigned to the network. Trip distribution and assignment of the inbound and outbound project trips are shown in Figure 5 and Figure 6, respectively.

Trips were assigned to parking lots closest to the project site within the study area. Lots were chosen based on proximity to the project site and average evening availability, using information from MICA's Mercer Island Parking Analysis to Assess Availability (2015).



Project Inbound Trip Distribution

Mercer Island Center for the Arts (MICA)

FIGURE 5

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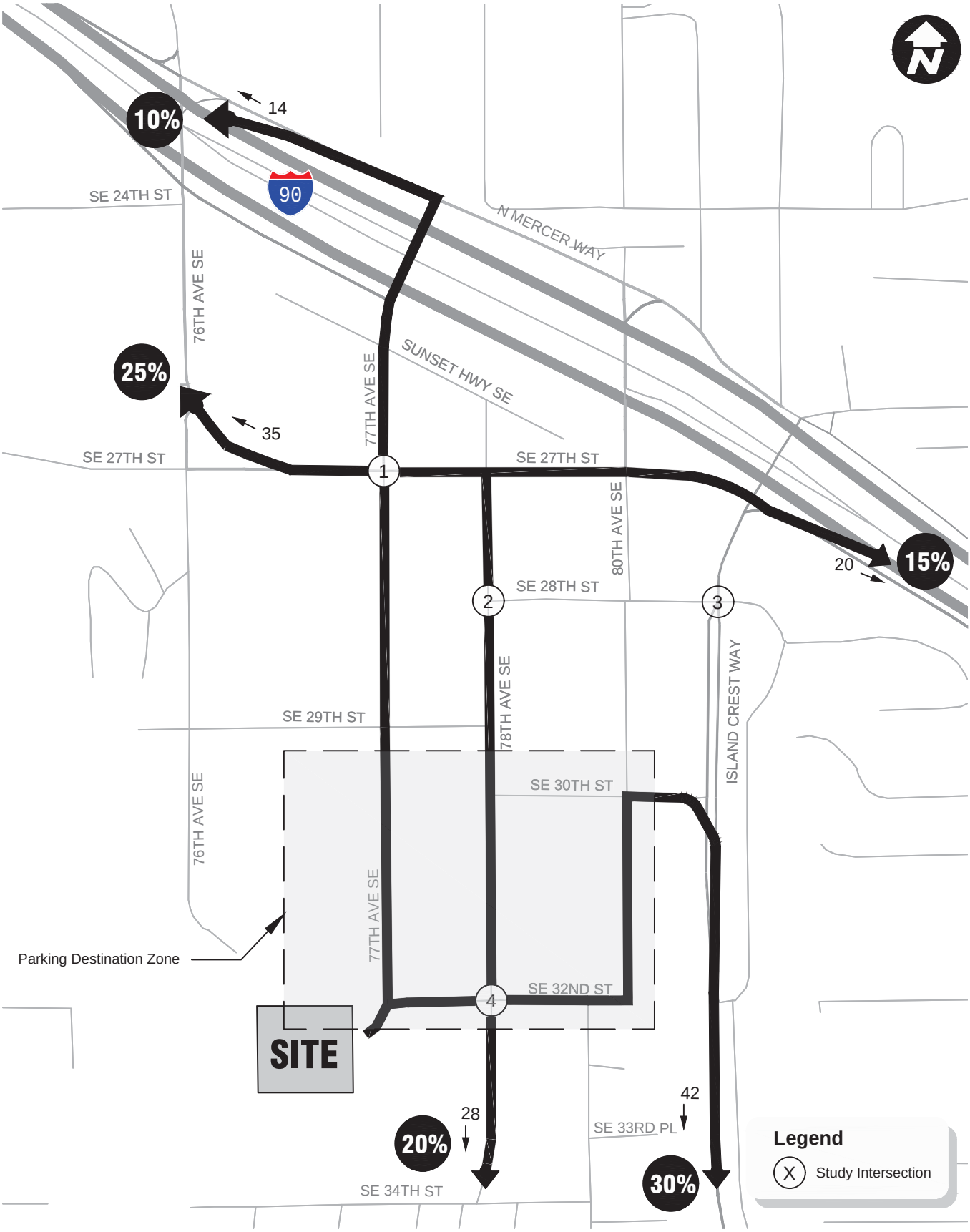

Project Outbound Trip Distribution

Mercer Island Center for the Arts (MICA)

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Traffic Volumes

The project traffic volumes were added to the future without-project 2019 traffic volumes to form the basis of the with-project analysis. Figure 7 shows the weekday PM peak hour with-project traffic volumes at the study intersections.

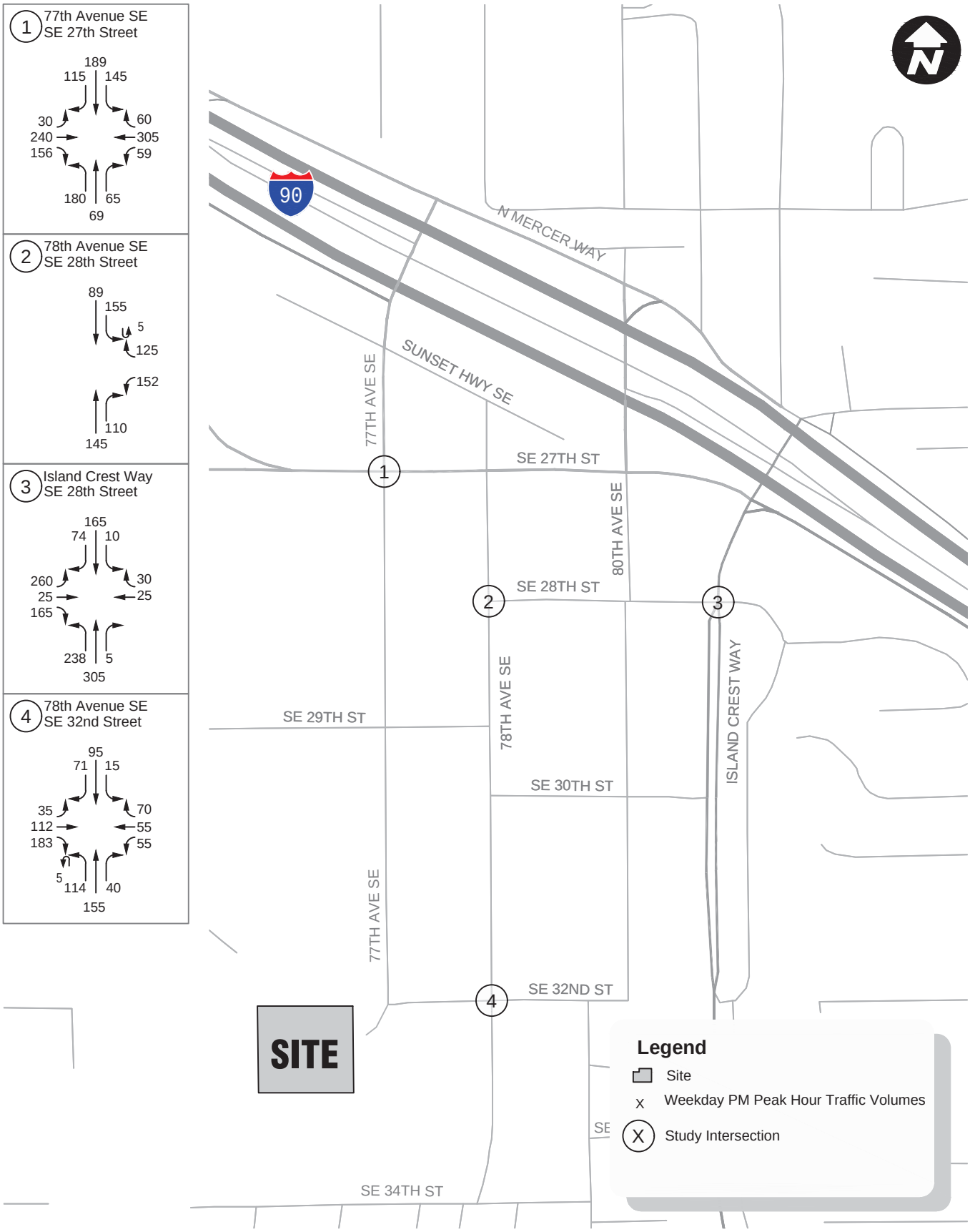
Table 5 summarizes the anticipated increase in total entering traffic as well as the percent of future with-project volume attributable to the proposed project.

Table 5. 2019 Weekday PM Peak Hour Traffic Volume Impact at Study Intersections

	2019 PM Peak Traffic			
Study Intersections	**Without-Project**	**With- Project**	**Project Traffic**	**Project Impact**
1. 77th Avenue SE/ SE 27th Street	1,490	1,613	123	7.6%
2. 78th Avenue SE/ SE 28th Street	720	781	61	7.8%
3. Island Crest Way/ SE 28th Street	1,255	1,302	47	3.6%
4. 78th Avenue SE/ SE 32nd Street	845	1,005	160	15.9%

Source: Transpo Group, June 2016

As shown in the table, project traffic would account for about 8 to 16 percent of the total PM peak hour traffic volume at the study intersections in 2019. At intersections closer to the project site, including the 78th Avenue SE/SE 28th Street study intersection, project traffic would have the greatest volume impact.



Future (2019) With-Project Weekday PM Peak Hour Volumes

FIGURE 7

Mercer Island Center for the Arts (MICA)

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Traffic Operations

Intersection operations analysis was conducted in the study area to evaluate the future 2019 conditions with the development of the project. Intersection LOS were calculated at the study intersections using the LOS methodology described previously.

Table 6 provides a comparison between the 2019 with- and without-project conditions. The detailed LOS worksheets are included in Appendix C.

Table 6. Future (2019) With and Without-Project Weekday PM Peak Hour Level of Service

	2019 Without-Project			2019 With-Project		
Intersections	**LOS[1]**	**Delay[2]**	**WM[3]**	**LOS**	**Delay**	**WM**
1. 77th Avenue SE / SE 27th Street	B	17.2	-	B	19.1	-
2. 78th Avenue SE / SE 28th Street	B	11.3	SB	B	11.3	SB
3. Island Crest Way / SE 28th Street	C	21.0	-	C	23.5	-
4. 78th Avenue SE / SE 32nd Street	B	12.3	EB	B	13.9	EB

1. Level of service (LOS), based on 2010 *Highway Capacity Manual* methodology.
2. Average delay in seconds per vehicle.
3. Worst movement reported for unsignalized intersections where EB = eastbound and SB = southbound.

As shown in Table 6, all study intersections would operate at LOS C or better, meeting LOS standards. All study intersections would operate at the same LOS under with-project conditions relative to without-project conditions, adding approximately three seconds or less of delay.

Pick-Up and Drop-Off Trips

Pick-up and drop-off activity will occur for youth classes and rehearsals at the MICA facility correlated with class start and dismissal times. Based on projected MICA activity forecasts, back-to-back classes during daytime, afternoon, and evening hours would require simultaneous pick-up and drop-off trips. Class start and dismissal times will be staggered to accommodate high drop-off and pick-up volumes. It is estimated that a maximum of 34 drop-off trips and 19 pick-up trips could occur during the weekday (Monday-Thursday) PM peak hour for the roadway network. Given drop off activity is very quick and would occur over a 15-minute period leading up to the start of a class these activities would operate well. Pick-up activities for a class dismissal occur at the same time and the capacity of the loading area will accommodate approximately 6 vehicles at once. There is space for an additional 29 vehicles to queue in the on-street parking areas north of the drop off along the west side of 77th Avenue SE. This assumes the on-street parking on the west side of 77th Avenue SE will be signed for temporary loading and unloading during times of high drop-off and pick-up volume. An additional 19 on-street parallel parking spaces will be created on the east side of 77th Avenue SE.

A parking management plan has been developed in coordination with the City to identify strategies to best manage pick-up and drop-off activity. The plan will incorporate a dedicated pick-up and drop-off area that will be supervised and managed by staff from MICA. Signage for temporary loading activity will be applied to the on-street parking along the west side of 77th Avenue SE north of the site. MICA will work to manage the capacity through scheduling and other management practices to ensure for smooth operations. The proposed loading area design concept is included in Appendix F.

Parking

The following sections summarize the proposed parking supply, on-street parking utilization, and estimated peak parking demand.

Supply

No on-site parking is proposed for this project. The project is proposing to reconfigure SE 32nd Street and 77th Avenue SE to provide a dedicated drop-off and pick-up area as well as additional on-street parking. Providing additional parking along these streets is consistent with the Town Center plan.

Existing on-street parking supply is currently under-utilized. Two studies, the *Mercer Island Parking Analysis to Assess Availability* (2015, MICA) and the *Town Center Parking Study* (April 2016, BERK/City of Mercer Island), assessed the availability of off-site surrounding parking lots. More than 1,600 off-street parking stalls are located within a quarter mile of the MICA site, and their occupancy ranged from 20 percent to 40 percent in the highest studied occupancy period, 12:00 p.m. to 3:00 p.m. Based on these studies and commitments from surrounding lots, it is anticipated that on-street parking and parking available at local businesses will be shared to satisfy the project parking demand.

On-Street Parking Supply

An on-street parking utilization study was conducted to determine the available on-street parking supply and occupancy within a 1200-foot walking distance of the project site. Information at 800-foot, 1000-foot, and 1200-foot walking distances from the site are summarized in Table 7. Parking supply and demand counts were conducted from 2 p.m. to 3 p.m. and 6 p.m. to 7 p.m. in April 2016. The roadways included in the study area were SE 29th Street, 80th Avenue SE, and SE 32nd Street. A detailed summary of the parking utilization study is provided in Appendix E.

Table 7. Parking Utilization Study Summary

	Walking Distance from Site		
	800-feet	**1,000-feet**	**1,200-feet**
On-Street Supply[1]	19	106	116
Afternoon			
Average On-Street Occupancy[2]	11 (58%)	70 (66%)	71 (61%)
Available Parking Supply	**8**	**36**	**45**
Evening			
Average On-Street Occupancy[2]	3 (13%)	37 (34%)	38 (33%)
Available Parking Supply	**16**	**69**	**78**

1. Estimated on-street parking spaces based on standard SDOT procedures for measurements July 2015.
2. Based on an average of two days of data collection on April 26 and 27, 2016.

As shown in the table, the average on-street occupancy ranges from approximately 58-61percent of the available on-street supply in the afternoon and approximately 13-34 percent in the evening. During the afternoon, a total of 45 spaces are available within 1,200 feet the site, with 36 available within 1,000 feet of the site, and 8 available within 800 feet of the site. During the evening, a total of 78 spaces are available within the site vicinity, with 69 available within 1,000 feet of the site, and 16 available within 800 feet of the site. Note these figures do not include the approximately 37 new on-street parking spaces that are expected to be added on 77th Avenue SE north of the site, extending to SE 29th Street.

Demand

Parking demand was evaluated through multiple factors. The Institute of Transportation Engineers (ITE) *Parking Generation*, 4th Edition, and City of Mercer Island code requirements were consulted while developing parking demand. The ITE Land Use 441 (Live Theater) recommends an average of 0.33 spaces per seat, or 1 parking space per 3 theater seats. ITE provides guidelines for parking demand; however, due to the unique

characteristics of the project site, activity forecasts for both Typical Activity and Peak Activity scenarios were analyzed.

Within the Mercer Island commercial zoned areas, City code requires 1 parking space for every 4 seats.[3] The City of Mercer Island zoning does not specifically require a minimum amount of parking for performing arts uses in the P land use zoning, but MICA will propose zoning changes to require an amount of spaces. ADA parking requirements will be accommodated with on-street designated handicap parking at the nearest areas to the site.

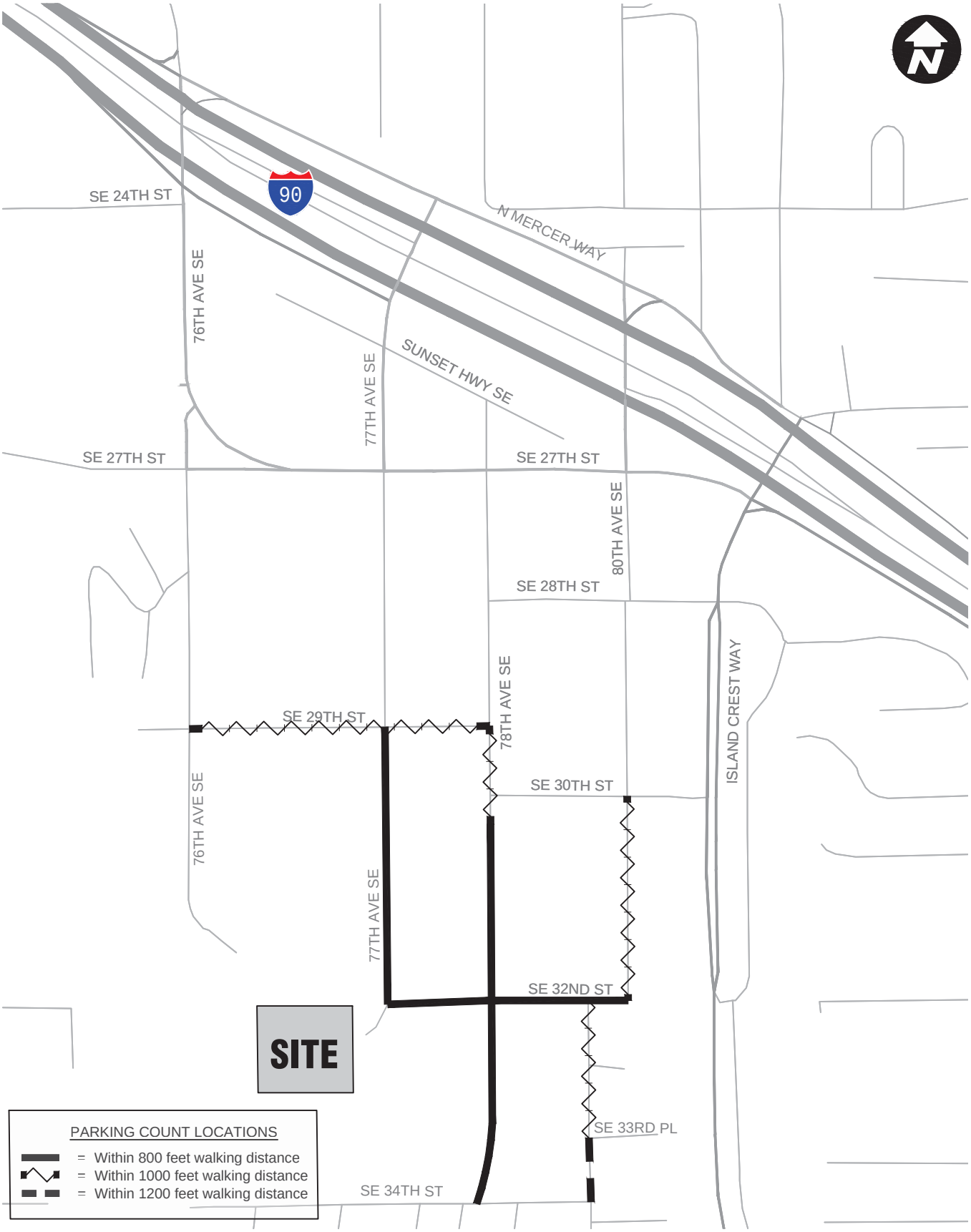
Parking demand and accumulation was estimated based on activity schedules provided by MICA. Two demand scenarios were developed to accompany each trip generation scenarios, a base parking demand and parking demand with load zone spillover. The base parking demand includes inbound and outbound vehicles parking at MICA for an extended period (i.e. staff members, audience, and adult performers not utilizing the loading area). The parking demand with load zone spillover includes the base demand with additional vehicles that would park to drop-off or pick-up a youth performer, but would not be accommodated in the load zone due to high vehicle volume. Detailed assumptions regarding parking demand are included in Appendix D.

The weekday (Monday-Thursday) base peak parking demand ranges from a total of 117 to 150 parking stalls for the Typical and Peak Activity forecasts, respectively. The weekday (Monday-Thursday) peak parking demand including load zone spillover ranges from a total of 126 to 159 for the Typical and Peak scenarios, respectively. Peak demand occurs during the 7:00 p.m. to 8:00 p.m. hour, during evening performances. Parking demand assumptions are conservative because attendance levels are anticipated to be lower. While it is expected that multiple activities could occur throughout the performing arts center simultaneously, it is unlikely that every venue would be filled at the same time period.

The Average Vehicle Occupancies (AVO) of 1.0 persons per vehicle for staff members and performers, and 2.2 persons per vehicle for audience were assumed to be consistent with trip generation methodology, as well as the *Federal Way Performing Arts & Conference Center – Traffic & Parking Study*.

The accompanying parking management plan details strategies for accommodating parking demands. Detailed assumptions regarding activity schedules and parking accumulation are included in Appendix D.

[3] Mercer Island City Code, Chapter 19.04, Section 19.04.040



Parking Utilization Study Area

Mercer Island Center for the Arts (MICA)

FIGURE
8

transpogroup
WHAT TRANSPORTATION CAN BE.

Dec 20, 2016 - 12:27pm francescal \\srv-dfs-wa\MM_Projects\Projects\15\15249.00 - Mercer Island Center for the Arts\Graphics\15249_Graphics.dwg Layout: Fig8

Findings and Recommendations

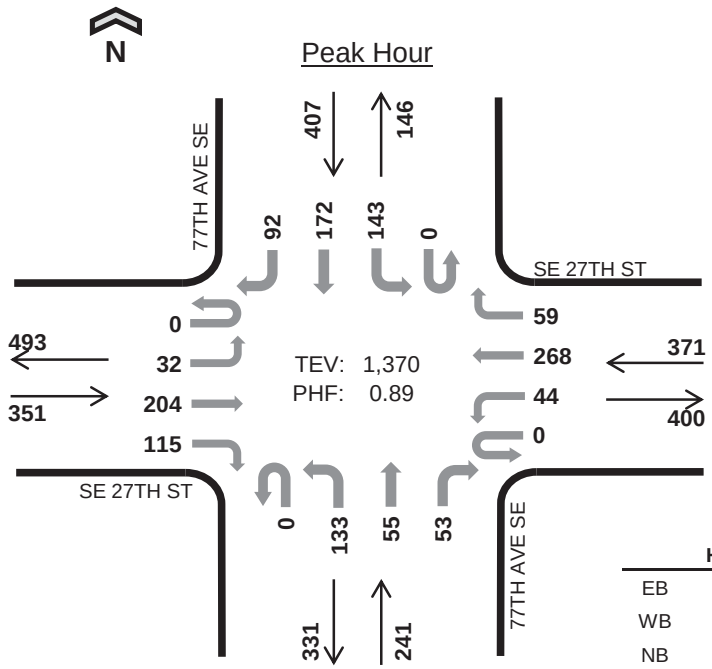
This transportation impact study summarizes the project traffic impacts of the proposed Mercer Island Center for the Arts (MICA). General findings and recommendations include:

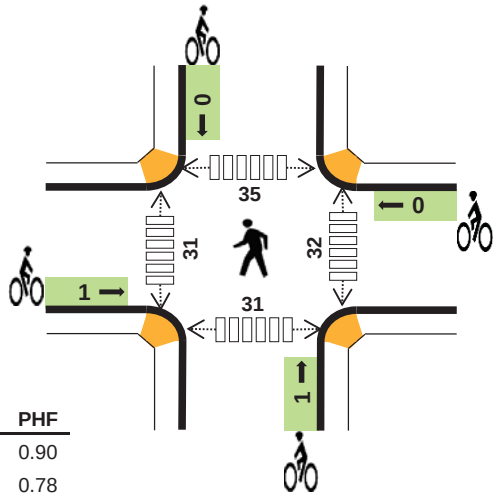
- Based on a conservative estimate of project trip generation, the project will generate approximately 283 trips during the weekday PM peak hour with 144 inbound and 139 outbound.
- Project traffic would represent 8 to 16 percent of the 2019 PM peak hour traffic volumes at off-site study intersections.
- All study intersections are anticipated to meet the respective City and WSDOT standards, operating at LOS C or better under both future 2019 with- and without-project conditions.
- The adjacent street frontages along 77th Avenue SE and SE 32nd Street will be reconfigured to provide for a pick-up and drop-off area in front of the site, safe pedestrian crossings, and additional on-street parking.
- The site is not providing parking on-site and is anticipated to utilize publicly available on-street parking to accommodate every day activities and utilize agreements with nearby businesses to share parking in the evenings for performances and activities when additional parking is needed. The anticipated weekday (Monday-Thursday) base peak parking demand ranges from a total of 117 to 150 parking stalls for the Typical and Peak Activity forecasts, respectively.
- MICA has developed a Parking Management Plan that identifies strategies for managing parking and minimizing impacts to the surrounding neighborhood.

Appendix A: Traffic Counts

77TH AVE SE
SE 27TH ST

Date: Wed, Apr 27, 2016
Count Period: 4:00 PM to 7:00 PM
Peak Hour: 4:45 PM to 5:45 PM





	HV %:	PHF
EB	0.6%	0.90
WB	0.8%	0.78
NB	1.2%	0.90
SB	1.5%	0.94
TOTAL	1.0%	0.89

Three-Hour Count Summaries

Interval Start	SE 27TH ST Eastbound				SE 27TH ST Westbound				77TH AVE SE Northbound				77TH AVE SE Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:45 PM	0	6	60	31	0	11	60	12	0	31	11	16	0	32	40	20	330	0
5:00 PM	0	6	39	40	0	11	64	12	0	27	16	11	0	29	49	23	327	0
5:15 PM	0	10	57	25	0	15	81	23	0	36	19	12	0	34	48	24	384	0
5:30 PM	0	10	48	19	0	7	63	12	0	39	9	14	0	48	35	25	329	1,370
Peak Hour	0	32	204	115	0	44	268	59	0	133	55	53	0	143	172	92	1,370	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:45 PM	1	2	1	1	*5*	0	0	0	0	*0*	6	8	6	9	*29*
5:00 PM	0	0	2	1	*3*	0	0	0	0	*0*	9	8	12	9	*38*
5:15 PM	1	1	0	1	*3*	1	0	0	0	*1*	5	6	8	4	*23*
5:30 PM	0	0	0	3	*3*	0	0	1	0	*1*	12	9	9	9	*39*
Peak Hour	2	3	3	6	*14*	1	0	1	0	*2*	32	31	35	31	*129*

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Three-Hour Count Summaries

Interval Start	SE 27TH ST Eastbound				SE 27TH ST Westbound				77TH AVE SE Northbound				77TH AVE SE Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	2	69	39	0	10	57	11	0	33	13	25	0	33	40	20	352	0
4:15 PM	0	5	49	27	0	12	55	12	0	29	16	13	0	21	35	17	291	0
4:30 PM	0	3	59	36	0	12	38	10	0	32	10	16	0	39	37	22	314	0
4:45 PM	**0**	**6**	**60**	**31**	**0**	**11**	**60**	**12**	**0**	**31**	**11**	**16**	**0**	**32**	**40**	**20**	**330**	1,287
5:00 PM	**0**	**6**	**39**	**40**	**0**	**11**	**64**	**12**	**0**	**27**	**16**	**11**	**0**	**29**	**49**	**23**	**327**	1,262
5:15 PM	**0**	**10**	**57**	**25**	**0**	**15**	**81**	**23**	**0**	**36**	**19**	**12**	**0**	**34**	**48**	**24**	**384**	1,355
5:30 PM	**0**	**10**	**48**	**19**	**0**	**7**	**63**	**12**	**0**	**39**	**9**	**14**	**0**	**48**	**35**	**25**	**329**	**1,370**
5:45 PM	0	3	49	30	0	9	56	10	0	26	10	17	0	41	50	22	323	1,363
6:00 PM	0	4	77	28	0	8	52	13	0	35	10	9	0	28	35	25	324	1,360
6:15 PM	0	6	52	23	0	10	50	11	0	22	9	13	0	23	39	15	273	1,249
6:30 PM	0	5	54	31	0	9	60	21	0	25	8	10	0	22	40	18	303	1,223
6:45 PM	0	6	60	27	0	10	59	14	0	27	7	9	0	26	17	23	285	1,185
Count Total	0	66	673	356	0	124	695	161	0	362	138	165	0	376	465	254	3,835	0
Peak Hour	**0**	**32**	**204**	**115**	**0**	**44**	**268**	**59**	**0**	**133**	**55**	**53**	**0**	**143**	**172**	**92**	**1,370**	**0**

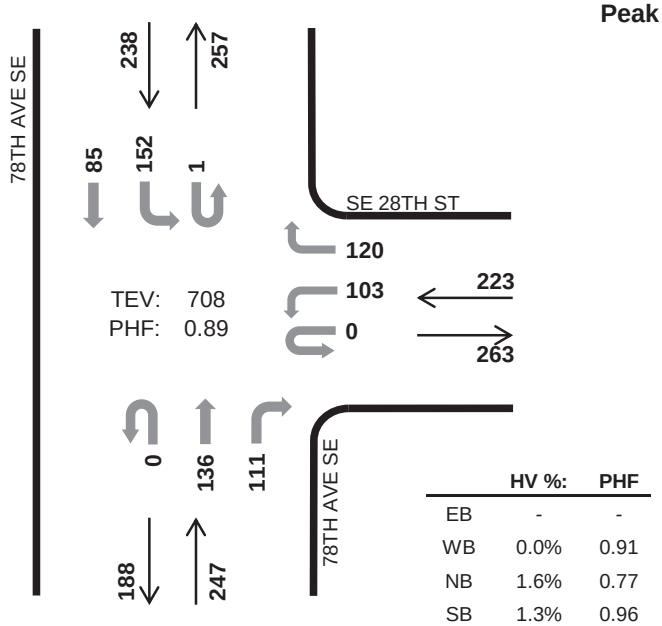
Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	2	0	2	2	*6*	0	0	0	0	*0*	12	7	5	8	*32*
4:15 PM	0	1	0	1	*2*	1	0	1	0	*2*	2	2	4	20	*28*
4:30 PM	2	1	0	1	*4*	0	0	1	1	*2*	9	6	10	1	*26*
4:45 PM	**1**	**2**	**1**	**1**	***5***	**0**	**0**	**0**	**0**	***0***	**6**	**8**	**6**	**9**	*29*
5:00 PM	**0**	**0**	**2**	**1**	***3***	**0**	**0**	**0**	**0**	***0***	**9**	**8**	**12**	**9**	*38*
5:15 PM	**1**	**1**	**0**	**1**	***3***	**1**	**0**	**0**	**0**	***1***	**5**	**6**	**8**	**4**	*23*
5:30 PM	**0**	**0**	**0**	**3**	***3***	**0**	**0**	**1**	**0**	***1***	**12**	**9**	**9**	**9**	***39***
5:45 PM	0	0	0	0	*0*	0	0	2	2	*4*	3	7	7	11	*28*
6:00 PM	0	0	1	1	*2*	1	0	1	0	*2*	18	3	10	7	*38*
6:15 PM	0	0	0	1	*1*	0	1	0	0	*1*	5	7	1	12	*25*
6:30 PM	2	1	0	3	*6*	0	1	0	3	*4*	4	3	9	6	*22*
6:45 PM	0	0	1	0	*1*	0	0	0	0	*0*	4	6	7	16	*33*
Count Total	8	6	7	15	*36*	3	2	6	6	*17*	89	72	88	112	*361*
Peak Hour	**2**	**3**	**3**	**6**	***14***	**1**	**0**	**1**	**0**	***2***	**32**	**31**	**35**	**31**	***129***

78TH AVE SE
SE 28TH ST

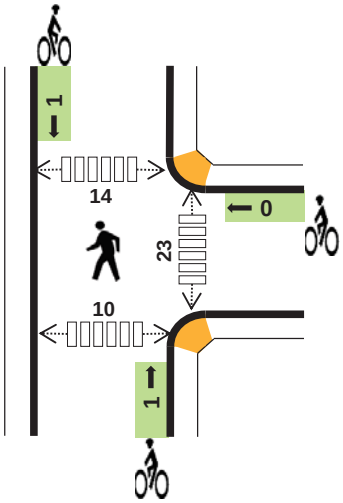
N

Peak Hour



	HV %:	PHF
EB	-	-
WB	0.0%	0.91
NB	1.6%	0.77
SB	1.3%	0.96
TOTAL	1.0%	0.89

Date: Wed, Apr 27, 2016
Count Period: 4:00 PM to 7:00 PM
Peak Hour: 5:00 PM to 6:00 PM



Three-Hour Count Summaries

Interval Start	0				SE 28TH ST				78TH AVE SE				78TH AVE SE				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
5:00 PM	0	0	0	0	0	26	0	35	0	0	40	40	0	33	26	0	200	0
5:15 PM	0	0	0	0	0	22	0	29	0	0	42	24	0	37	24	0	178	0
5:30 PM	0	0	0	0	0	30	0	26	0	0	27	17	1	41	14	0	156	0
5:45 PM	0	0	0	0	0	25	0	30	0	0	27	30	0	41	21	0	174	708
Peak Hour	0	0	0	0	0	103	0	120	0	0	136	111	1	152	85	0	708	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
5:00 PM	0	0	3	1	*4*	0	0	1	0	*1*	4	0	4	0	*8*
5:15 PM	0	0	0	2	*2*	0	0	0	0	*0*	12	0	3	6	*21*
5:30 PM	0	0	1	0	*1*	0	0	0	1	*1*	5	0	5	3	*13*
5:45 PM	0	0	0	0	*0*	0	0	0	0	*0*	2	0	2	1	*5*
Peak Hour	0	0	4	3	*7*	0	0	1	1	*2*	23	0	14	10	*47*

Three-Hour Count Summaries

Interval Start	0				SE 28TH ST				78TH AVE SE				78TH AVE SE				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	33	0	33	0	0	38	37	0	30	28	0	199	0
4:15 PM	0	0	0	0	0	30	0	37	0	0	39	30	0	21	14	0	171	0
4:30 PM	0	0	0	0	0	19	0	26	0	0	28	33	0	36	22	0	164	0
4:45 PM	0	0	0	0	0	23	0	28	0	0	21	26	0	38	24	0	160	694
5:00 PM	**0**	**0**	**0**	**0**	**0**	**26**	**0**	**35**	**0**	**0**	**40**	**40**	**0**	**33**	**26**	**0**	**200**	695
5:15 PM	**0**	**0**	**0**	**0**	**0**	**22**	**0**	**29**	**0**	**0**	**42**	**24**	**0**	**37**	**24**	**0**	**178**	702
5:30 PM	**0**	**0**	**0**	**0**	**0**	**30**	**0**	**26**	**0**	**0**	**27**	**17**	**1**	**41**	**14**	**0**	**156**	694
5:45 PM	**0**	**0**	**0**	**0**	**0**	**25**	**0**	**30**	**0**	**0**	**27**	**30**	**0**	**41**	**21**	**0**	**174**	**708**
6:00 PM	0	0	0	0	0	21	0	23	0	0	29	23	0	27	23	0	146	654
6:15 PM	0	0	0	0	0	29	0	25	0	0	35	18	0	22	11	0	140	616
6:30 PM	0	0	0	0	0	24	0	34	0	0	34	17	0	24	13	0	146	606
6:45 PM	0	0	0	0	0	24	0	30	0	0	31	13	0	20	10	0	128	560
Count Total	0	0	0	0	0	306	0	356	0	0	391	308	1	370	230	0	1,962	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**103**	**0**	**120**	**0**	**0**	**136**	**111**	**1**	**152**	**85**	**0**	**708**	**0**

Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	1	2	*3*	0	0	0	0	*0*	16	0	4	14	*34*
4:15 PM	0	0	1	1	*2*	0	0	0	1	*1*	11	0	6	3	*20*
4:30 PM	0	0	1	2	*3*	0	0	0	0	*0*	10	0	1	2	*13*
4:45 PM	0	1	0	2	*3*	0	0	0	0	*0*	6	0	0	6	*12*
5:00 PM	**0**	**0**	**3**	**1**	***4***	**0**	**0**	**1**	**0**	***1***	**4**	**0**	**4**	**0**	*8*
5:15 PM	**0**	**0**	**0**	**2**	***2***	**0**	**0**	**0**	**0**	***0***	**12**	**0**	**3**	**6**	*21*
5:30 PM	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**1**	***1***	**5**	**0**	**5**	**3**	*13*
5:45 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**2**	**0**	**2**	**1**	***5***
6:00 PM	0	0	3	1	*4*	0	0	0	0	*0*	9	0	2	8	*19*
6:15 PM	0	0	1	1	*2*	0	0	0	1	*1*	4	0	6	2	*12*
6:30 PM	0	0	2	0	*2*	0	0	1	1	*2*	11	0	0	5	*16*
6:45 PM	0	0	0	0	*0*	0	0	0	2	*2*	7	0	5	5	*17*
Count Total	0	1	13	12	*26*	0	0	2	6	*8*	97	0	38	55	*190*
Peak Hr	**0**	**0**	**4**	**3**	***7***	**0**	**0**	**1**	**1**	***2***	**23**	**0**	**14**	**10**	***47***

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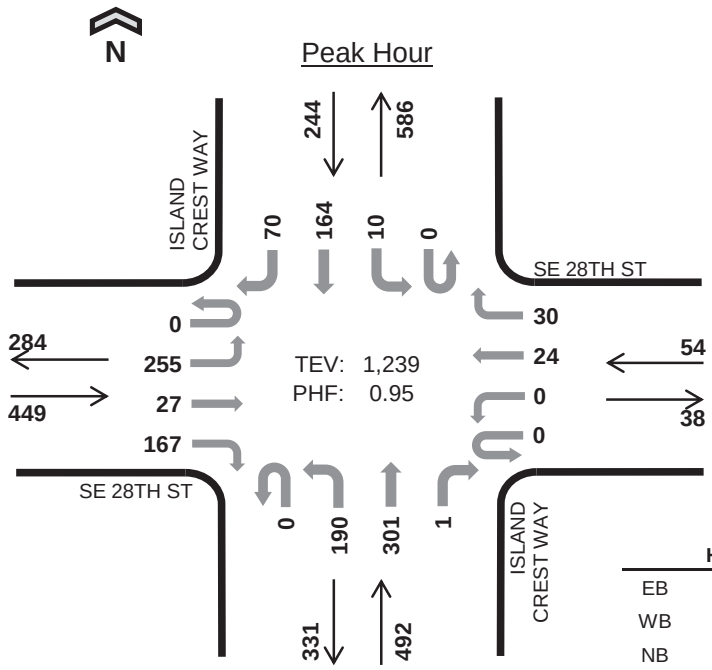
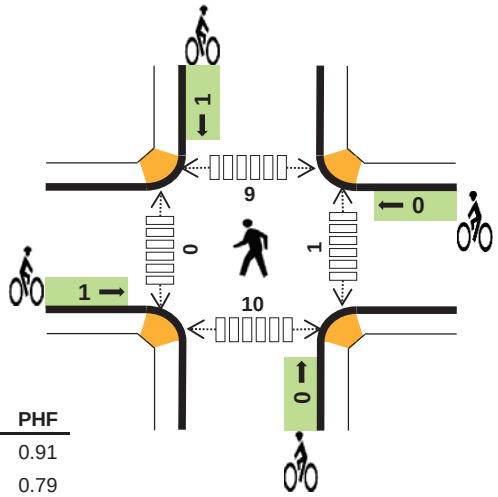
ISLAND CREST WAY
SE 28TH ST

Date: Wed, Apr 27, 2016
Count Period: 4:00 PM to 7:00 PM
Peak Hour: 4:00 PM to 5:00 PM





	HV %:	PHF
EB	0.7%	0.91
WB	1.9%	0.79
NB	2.6%	0.91
SB	1.6%	0.78
TOTAL	1.7%	0.95

Three-Hour Count Summaries

Interval Start	SE 28TH ST Eastbound				SE 28TH ST Westbound				ISLAND CREST WAY Northbound				ISLAND CREST WAY Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	75	6	38	0	0	5	6	0	49	66	0	0	4	43	26	318	0
4:15 PM	0	63	3	34	0	0	8	5	0	47	88	0	0	3	57	18	326	0
4:30 PM	0	60	7	40	0	0	7	10	0	44	64	0	0	2	32	14	280	0
4:45 PM	0	57	11	55	0	0	4	9	0	50	83	1	0	1	32	12	315	1,239
Peak Hour	0	255	27	167	0	0	24	30	0	190	301	1	0	10	164	70	1,239	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	2	1	3	1	*7*	0	0	0	0	*0*	0	0	3	0	*3*
4:15 PM	0	0	2	1	*3*	0	0	0	0	*0*	0	0	4	0	*4*
4:30 PM	1	0	4	2	*7*	1	0	0	0	*1*	1	0	1	6	*8*
4:45 PM	0	0	4	0	*4*	0	0	0	1	*1*	0	0	1	4	*5*
Peak Hour	3	1	13	4	*21*	1	0	0	1	*2*	1	0	9	10	*20*

Three-Hour Count Summaries

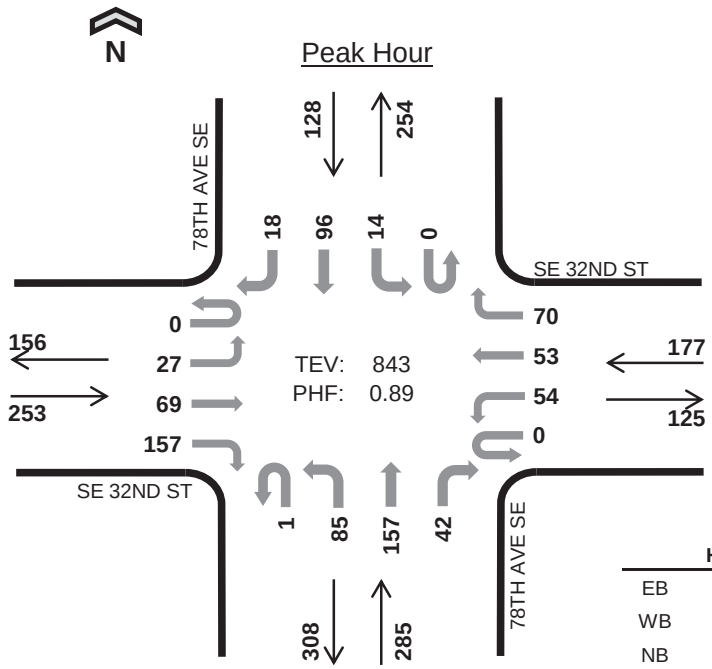
Interval Start	SE 28TH ST Eastbound				SE 28TH ST Westbound				ISLAND CREST WAY Northbound				ISLAND CREST WAY Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**75**	**6**	**38**	**0**	**0**	**5**	**6**	**0**	**49**	**66**	**0**	**0**	**4**	**43**	**26**	**318**	0
4:15 PM	**0**	**63**	**3**	**34**	**0**	**0**	**8**	**5**	**0**	**47**	**88**	**0**	**0**	**3**	**57**	**18**	**326**	0
4:30 PM	**0**	**60**	**7**	**40**	**0**	**0**	**7**	**10**	**0**	**44**	**64**	**0**	**0**	**2**	**32**	**14**	**280**	0
4:45 PM	**0**	**57**	**11**	**55**	**0**	**0**	**4**	**9**	**0**	**50**	**83**	**1**	**0**	**1**	**32**	**12**	**315**	**1,239**
5:00 PM	0	83	8	44	0	0	10	6	0	52	64	0	1	2	23	20	313	1,234
5:15 PM	0	55	7	42	0	1	3	4	0	45	64	0	0	2	33	16	272	1,180
5:30 PM	0	54	7	49	0	0	5	6	0	52	79	2	0	1	25	4	284	1,184
5:45 PM	0	35	10	50	0	0	13	12	0	36	66	0	0	4	32	12	270	1,139
6:00 PM	0	38	10	50	0	1	6	8	0	44	45	0	0	2	46	7	257	1,083
6:15 PM	0	35	5	43	0	0	2	5	0	39	66	0	0	5	48	14	262	1,073
6:30 PM	0	31	8	32	0	0	7	9	0	29	82	0	0	1	32	15	246	1,035
6:45 PM	0	24	6	28	0	0	5	3	0	37	75	1	0	2	30	20	231	996
Count Total	0	610	88	505	0	2	75	83	0	524	842	4	1	29	433	178	3,374	0
Peak Hour	**0**	**255**	**27**	**167**	**0**	**0**	**24**	**30**	**0**	**190**	**301**	**1**	**0**	**10**	**164**	**70**	**1,239**	**0**

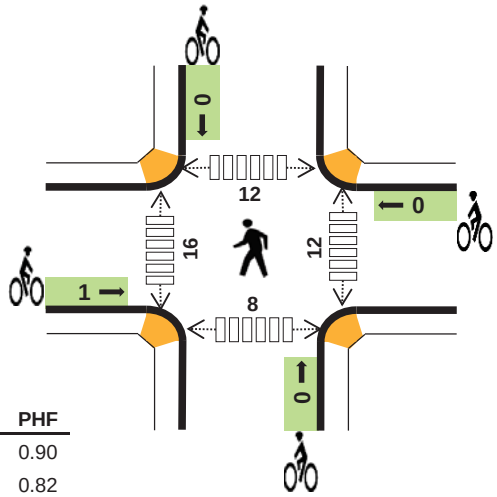
Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	**2**	**1**	**3**	**1**	***7***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**3**	**0**	*3*
4:15 PM	**0**	**0**	**2**	**1**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**4**	**0**	*4*
4:30 PM	**1**	**0**	**4**	**2**	***7***	**1**	**0**	**0**	**0**	***1***	**1**	**0**	**1**	**6**	*8*
4:45 PM	**0**	**0**	**4**	**0**	***4***	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**1**	**4**	***5***
5:00 PM	1	0	1	0	*2*	0	0	0	0	*0*	0	0	0	2	*2*
5:15 PM	1	0	2	2	*5*	0	0	0	0	*0*	0	0	3	0	*3*
5:30 PM	0	0	1	0	*1*	0	0	0	0	*0*	0	0	3	0	*3*
5:45 PM	0	0	1	1	*2*	0	0	0	0	*0*	0	0	2	0	*2*
6:00 PM	1	0	2	0	*3*	0	0	0	0	*0*	0	0	1	0	*1*
6:15 PM	2	0	2	1	*5*	0	1	0	0	*1*	0	0	0	0	*0*
6:30 PM	0	0	3	0	*3*	0	0	0	0	*0*	0	0	0	1	*1*
6:45 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	1	0	*1*
Count Total	8	1	25	8	*42*	1	1	0	1	*3*	1	0	19	13	*33*
Peak Hour	**3**	**1**	**13**	**4**	***21***	**1**	**0**	**0**	**1**	***2***	**1**	**0**	**9**	**10**	***20***

78TH AVE SE
SE 32ND ST

Date: Wed, Apr 27, 2016
Count Period: 4:00 PM to 7:00 PM
Peak Hour: 4:00 PM to 5:00 PM





	HV %:	PHF
EB	0.8%	0.90
WB	1.7%	0.82
NB	0.7%	0.90
SB	2.3%	0.80
TOTAL	1.2%	0.89

Three-Hour Count Summaries

Interval Start	SE 32ND ST Eastbound				SE 32ND ST Westbound				78TH AVE SE Northbound				78TH AVE SE Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	8	21	36	0	20	17	17	0	19	45	14	0	5	28	7	237	0
4:15 PM	0	7	21	35	0	14	16	13	1	22	38	9	0	4	26	6	212	0
4:30 PM	0	4	18	48	0	8	6	25	0	16	38	4	0	1	16	5	189	0
4:45 PM	0	8	9	38	0	12	14	15	0	28	36	15	0	4	26	0	205	843
Peak Hour	0	27	69	157	0	54	53	70	1	85	157	42	0	14	96	18	843	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	2	1	1	*4*	0	0	0	0	*0*	2	3	2	2	*9*
4:15 PM	0	0	0	2	*2*	1	0	0	0	*1*	3	4	2	3	*12*
4:30 PM	2	0	1	0	*3*	0	0	0	0	*0*	4	5	1	3	*13*
4:45 PM	0	1	0	0	*1*	0	0	0	0	*0*	3	4	7	0	*14*
Peak Hour	2	3	2	3	*10*	1	0	0	0	*1*	12	16	12	8	*48*

Three-Hour Count Summaries

Interval Start	SE 32ND ST Eastbound				SE 32ND ST Westbound				78TH AVE SE Northbound				78TH AVE SE Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**8**	**21**	**36**	**0**	**20**	**17**	**17**	**0**	**19**	**45**	**14**	**0**	**5**	**28**	**7**	**237**	0
4:15 PM	**0**	**7**	**21**	**35**	**0**	**14**	**16**	**13**	**1**	**22**	**38**	**9**	**0**	**4**	**26**	**6**	**212**	0
4:30 PM	**0**	**4**	**18**	**48**	**0**	**8**	**6**	**25**	**0**	**16**	**38**	**4**	**0**	**1**	**16**	**5**	**189**	0
4:45 PM	**0**	**8**	**9**	**38**	**0**	**12**	**14**	**15**	**0**	**28**	**36**	**15**	**0**	**4**	**26**	**0**	**205**	**843**
5:00 PM	0	7	15	46	0	7	10	18	0	20	29	6	0	6	24	3	191	797
5:15 PM	0	6	9	39	0	10	12	12	0	24	42	5	0	3	36	3	201	786
5:30 PM	0	3	7	39	0	4	10	3	0	26	34	11	0	1	22	3	163	760
5:45 PM	0	6	7	36	0	12	11	4	0	24	34	6	0	4	27	6	177	732
6:00 PM	0	5	8	50	0	14	7	11	0	22	34	3	0	6	34	1	195	736
6:15 PM	0	5	15	47	0	7	9	4	0	13	30	4	0	7	21	3	165	700
6:30 PM	0	8	6	30	0	5	8	3	0	26	28	5	0	7	22	4	152	689
6:45 PM	0	3	2	28	0	5	5	7	0	21	37	0	0	2	16	1	127	639
Count Total	0	70	138	472	0	118	125	132	1	261	425	82	0	50	298	42	2,214	0
Peak Hour	**0**	**27**	**69**	**157**	**0**	**54**	**53**	**70**	**1**	**85**	**157**	**42**	**0**	**14**	**96**	**18**	**843**	**0**

Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	**0**	**2**	**1**	**1**	***4***	**0**	**0**	**0**	**0**	***0***	**2**	**3**	**2**	**2**	*9*
4:15 PM	**0**	**0**	**0**	**2**	***2***	**1**	**0**	**0**	**0**	***1***	**3**	**4**	**2**	**3**	*12*
4:30 PM	**2**	**0**	**1**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**4**	**5**	**1**	**3**	*13*
4:45 PM	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**3**	**4**	**7**	**0**	***14***
5:00 PM	0	0	3	1	*4*	0	0	0	0	*0*	3	2	3	0	*8*
5:15 PM	0	0	0	0	*0*	0	0	0	0	*0*	1	5	4	3	*13*
5:30 PM	0	0	2	2	*4*	0	0	0	0	*0*	2	4	2	4	*12*
5:45 PM	1	0	1	0	*2*	1	0	0	0	*1*	4	2	1	0	*7*
6:00 PM	0	1	3	1	*5*	1	0	0	0	*1*	1	3	1	2	*7*
6:15 PM	0	0	0	1	*1*	0	0	0	1	*1*	5	1	1	4	*11*
6:30 PM	0	0	3	0	*3*	3	0	1	1	*5*	2	3	0	3	*8*
6:45 PM	0	0	0	0	*0*	0	0	0	1	*1*	2	5	1	3	*11*
Count Total	3	4	14	8	*29*	6	0	1	3	*10*	32	41	25	27	*125*
Peak Hour	**2**	**3**	**2**	**3**	***10***	**1**	**0**	**0**	**0**	***1***	**12**	**16**	**12**	**8**	***48***

Appendix B: LOS Definitions

Highway Capacity Manual 2010

Signalized intersection level of service (LOS) is defined in terms of a weighted average control delay for the entire intersection. Control delay quantifies the increase in travel time that a vehicle experiences due to the traffic signal control as well as provides a surrogate measure for driver discomfort and fuel consumption. Signalized intersection LOS is stated in terms of average control delay per vehicle (in seconds) during a specified time period (e.g., weekday PM peak hour). Control delay is a complex measure based on many variables, including signal phasing and coordination (i.e., progression of movements through the intersection and along the corridor), signal cycle length, and traffic volumes with respect to intersection capacity and resulting queues. Table 1 summarizes the LOS criteria for signalized intersections, as described in the *Highway Capacity Manual 2010* (Transportation Research Board, 2010).

Table 1. Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)	General Description
A	≤10	Free Flow
B	>10 – 20	Stable Flow (slight delays)
C	>20 – 35	Stable flow (acceptable delays)
D	>35 – 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 – 80	Unstable flow (intolerable delay)
F[1]	>80	Forced flow (congested and queues fail to clear)

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

1. If the volume-to-capacity (v/c) ratio for a lane group exceeds 1.0 LOS F is assigned to the individual lane group. LOS for overall approach or intersection is determined solely by the control delay.

Unsignalized intersection LOS criteria can be further reduced into two intersection types: all-way stop and two-way stop control. All-way stop control intersection LOS is expressed in terms of the weighted average control delay of the overall intersection or by approach. Two-way stop-controlled intersection LOS is defined in terms of the average control delay for each minor-street movement (or shared movement) as well as major-street left-turns. This approach is because major-street through vehicles are assumed to experience zero delay, a weighted average of all movements results in very low overall average delay, and this calculated low delay could mask deficiencies of minor movements. Table 2 shows LOS criteria for unsignalized intersections.

Table 2. Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)
A	0 – 10
B	>10 – 15
C	>15 – 25
D	>25 – 35
E	>35 – 50
F[1]	>50

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

1. If the volume-to-capacity (v/c) ratio exceeds 1.0, LOS F is assigned an individual lane group for all unsignalized intersections, or minor street approach at two-way stop-controlled intersections. Overall intersection LOS is determined solely by control delay.

Appendix C:LOS Worksheets

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	205	115	45	270	60	135	55	55	145	170	90
Future Volume (veh/h)	30	205	115	45	270	60	135	55	55	145	170	90
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.93	0.98		0.95	0.97		0.92	0.96		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1863	1863	1900
Adj Flow Rate, veh/h	34	230	129	51	303	67	152	62	62	163	191	101
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	2	2	2
Cap, veh/h	336	411	231	335	552	122	421	222	222	549	309	163
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.09	0.27	0.27	0.10	0.28	0.28
Sat Flow, veh/h	996	1102	618	1006	1478	327	1792	826	826	1774	1122	593
Grp Volume(v), veh/h	34	0	359	51	0	370	152	0	124	163	0	292
Grp Sat Flow(s),veh/h/ln	996	0	1720	1006	0	1805	1792	0	1651	1774	0	1715
Q Serve(g_s), s	1.6	0.0	9.5	2.4	0.0	9.3	3.4	0.0	3.4	3.7	0.0	8.5
Cycle Q Clear(g_c), s	10.9	0.0	9.5	11.9	0.0	9.3	3.4	0.0	3.4	3.7	0.0	8.5
Prop In Lane	1.00		0.36	1.00		0.18	1.00		0.50	1.00		0.35
Lane Grp Cap(c), veh/h	336	0	642	335	0	673	421	0	444	549	0	472
V/C Ratio(X)	0.10	0.00	0.56	0.15	0.00	0.55	0.36	0.00	0.28	0.30	0.00	0.62
Avail Cap(c_a), veh/h	572	0	1049	573	0	1101	728	0	864	842	0	897
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.5	0.0	14.2	19.0	0.0	14.2	13.6	0.0	16.6	12.8	0.0	18.2
Incr Delay (d2), s/veh	0.1	0.0	0.8	0.2	0.0	0.7	0.5	0.0	0.3	0.3	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	4.6	0.7	0.0	4.8	1.7	0.0	1.6	1.8	0.0	4.1
LnGrp Delay(d),s/veh	18.6	0.0	15.0	19.2	0.0	14.9	14.1	0.0	16.9	13.1	0.0	19.5
LnGrp LOS	B		B	B		B	B		B	B		B
Approach Vol, veh/h		393			421			276			455	
Approach Delay, s/veh		15.3			15.4			15.3			17.2	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.5	20.4		26.4	10.2	20.8		26.4
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	15.0	30.0		35.0	15.0	30.0		35.0
Max Q Clear Time (g_c+I1), s	5.7	5.4		12.9	5.4	10.5		13.9
Green Ext Time (p_c), s	0.3	2.8		5.6	0.3	2.7		5.5

Intersection Summary	
HCM 2010 Ctrl Delay	15.9
HCM 2010 LOS	B

Intersection	
Intersection Delay, s/veh	10.4
Intersection LOS	B

Movement	WBU	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT
Traffic Vol, veh/h	0	105	120	0	135	110	5	150	85
Future Vol, veh/h	0	105	120	0	135	110	5	150	85
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	0	0	0	2	2	2	1	1	1
Mvmt Flow	0	118	135	0	152	124	6	169	96
Number of Lanes	0	1	1	0	1	0	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	9.8	10.3	11.1
HCM LOS	A	B	B

Lane	NBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	100%	0%	64%
Vol Thru, %	55%	0%	0%	36%
Vol Right, %	45%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	245	105	120	240
LT Vol	0	105	0	153
Through Vol	135	0	0	87
RT Vol	110	0	120	0
Lane Flow Rate	275	118	135	270
Geometry Grp	2	7	7	2
Degree of Util (X)	0.356	0.205	0.189	0.376
Departure Headway (Hd)	4.662	6.261	5.048	5.024
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	765	569	702	712
Service Time	2.728	4.051	2.837	3.092
HCM Lane V/C Ratio	0.359	0.207	0.192	0.379
HCM Control Delay	10.3	10.7	9	11.1
HCM Lane LOS	B	B	A	B
HCM 95th-tile Q	1.6	0.8	0.7	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	255	25	165	0	25	30	190	300	5	10	165	70
Future Volume (veh/h)	255	25	165	0	25	30	190	300	5	10	165	70
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1881	1881	1900	1863	1900	1845	1845	1900	1863	1863	1900
Adj Flow Rate, veh/h	268	26	174	0	26	32	200	316	5	11	174	74
Adj No. of Lanes	0	1	1	0	1	0	1	2	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	2	2	2	3	3	3	2	2	2
Cap, veh/h	393	38	367	0	63	78	248	1220	19	15	262	112
Arrive On Green	0.24	0.24	0.24	0.00	0.09	0.09	0.14	0.35	0.35	0.01	0.21	0.21
Sat Flow, veh/h	1640	159	1532	0	745	917	1757	3531	56	1774	1236	525
Grp Volume(v), veh/h	294	0	174	0	0	58	200	157	164	11	0	248
Grp Sat Flow(s),veh/h/ln	1799	0	1532	0	0	1662	1757	1752	1835	1774	0	1761
Q Serve(g_s), s	8.5	0.0	5.6	0.0	0.0	1.9	6.3	3.7	3.7	0.4	0.0	7.4
Cycle Q Clear(g_c), s	8.5	0.0	5.6	0.0	0.0	1.9	6.3	3.7	3.7	0.4	0.0	7.4
Prop In Lane	0.91		1.00	0.00		0.55	1.00		0.03	1.00		0.30
Lane Grp Cap(c), veh/h	431	0	367	0	0	142	248	605	634	15	0	374
V/C Ratio(X)	0.68	0.00	0.47	0.00	0.00	0.41	0.81	0.26	0.26	0.74	0.00	0.66
Avail Cap(c_a), veh/h	939	0	799	0	0	781	412	951	995	102	0	643
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.9	0.0	18.8	0.0	0.0	24.9	23.9	13.5	13.5	28.4	0.0	20.8
Incr Delay (d2), s/veh	1.4	0.0	0.7	0.0	0.0	1.4	2.3	0.2	0.2	22.8	0.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.0	2.4	0.0	0.0	0.9	3.2	1.8	1.9	0.3	0.0	3.8
LnGrp Delay(d),s/veh	21.3	0.0	19.5	0.0	0.0	26.3	26.3	13.8	13.8	51.3	0.0	22.8
LnGrp LOS	C		B			C	C	B	B	D		C
Approach Vol, veh/h		468			58			521			259	
Approach Delay, s/veh		20.6			26.3			18.6			24.0	
Approach LOS		C			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		18.3	12.6	17.2		9.4	5.0	24.9
Change Period (Y+Rc), s		4.5	4.5	5.0		4.5	4.5	5.0
Max Green Setting (Gmax), s		30.0	13.5	21.0		27.0	3.3	31.2
Max Q Clear Time (g_c+I1), s		10.5	8.3	9.4		3.9	2.4	5.7
Green Ext Time (p_c), s		1.9	0.1	2.6		0.2	0.0	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	20.7
HCM 2010 LOS	C

Intersection	
Intersection Delay, s/veh	11.5
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	25	70	155	0	55	55	70	5	85	155	40
Future Vol, veh/h	0	25	70	155	0	55	55	70	5	85	155	40
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	1	1	1	1	2	2	2	2	1	1	1	1
Mvmt Flow	0	28	79	174	0	62	62	79	6	96	174	45
Number of Lanes	0	1	1	0	0	1	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	2	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	2	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	2	2
HCM Control Delay	12.1	10.5	11.8
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%
Vol Thru, %	0%	79%	0%	31%	0%	44%	0%	83%
Vol Right, %	0%	21%	0%	69%	0%	56%	0%	17%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	90	195	25	225	55	125	15	115
LT Vol	90	0	25	0	55	0	15	0
Through Vol	0	155	0	70	0	55	0	95
RT Vol	0	40	0	155	0	70	0	20
Lane Flow Rate	101	219	28	253	62	140	17	129
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.187	0.365	0.052	0.402	0.118	0.232	0.033	0.227
Departure Headway (Hd)	6.656	6.004	6.726	5.73	6.856	5.95	6.957	6.324
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	539	598	531	627	522	601	513	566
Service Time	4.404	3.752	4.478	3.482	4.611	3.704	4.715	4.083
HCM Lane V/C Ratio	0.187	0.366	0.053	0.404	0.119	0.233	0.033	0.228
HCM Control Delay	10.9	12.2	9.8	12.3	10.5	10.5	10	10.9
HCM Lane LOS	B	B	A	B	B	B	A	B
HCM 95th-tile Q	0.7	1.7	0.2	1.9	0.4	0.9	0.1	0.9

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	15	95	20
Future Vol, veh/h	0	15	95	20
Peak Hour Factor	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	17	107	22
Number of Lanes	0	1	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	10.8
HCM LOS	B

Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	240	120	45	305	60	145	55	55	145	175	115
Future Volume (veh/h)	30	240	120	45	305	60	145	55	55	145	175	115
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.93	0.98		0.95	0.97		0.92	0.96		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1863	1863	1900
Adj Flow Rate, veh/h	34	270	135	51	343	67	163	62	62	163	197	129
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	2	2	2
Cap, veh/h	304	435	217	297	571	112	404	236	236	558	293	192
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.09	0.29	0.29	0.09	0.29	0.29
Sat Flow, veh/h	962	1154	577	966	1516	296	1792	827	827	1774	1026	672
Grp Volume(v), veh/h	34	0	405	51	0	410	163	0	124	163	0	326
Grp Sat Flow(s),veh/h/ln	962	0	1731	966	0	1812	1792	0	1655	1774	0	1697
Q Serve(g_s), s	1.8	0.0	11.7	2.8	0.0	11.2	3.8	0.0	3.6	3.9	0.0	10.4
Cycle Q Clear(g_c), s	13.0	0.0	11.7	14.5	0.0	11.2	3.8	0.0	3.6	3.9	0.0	10.4
Prop In Lane	1.00		0.33	1.00		0.16	1.00		0.50	1.00		0.40
Lane Grp Cap(c), veh/h	304	0	652	297	0	682	404	0	472	558	0	485
V/C Ratio(X)	0.11	0.00	0.62	0.17	0.00	0.60	0.40	0.00	0.26	0.29	0.00	0.67
Avail Cap(c_a), veh/h	490	0	986	484	0	1032	675	0	808	825	0	829
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.7	0.0	15.6	21.5	0.0	15.4	14.1	0.0	17.0	13.2	0.0	19.4
Incr Delay (d2), s/veh	0.2	0.0	1.0	0.3	0.0	0.9	0.6	0.0	0.3	0.3	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	5.7	0.8	0.0	5.7	1.9	0.0	1.7	1.9	0.0	5.1
LnGrp Delay(d),s/veh	20.8	0.0	16.6	21.7	0.0	16.3	14.7	0.0	17.2	13.4	0.0	21.0
LnGrp LOS	C		B	C		B	B		B	B		C
Approach Vol, veh/h		439			461			287			489	
Approach Delay, s/veh		16.9			16.9			15.8			18.5	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.8	22.5		28.1	10.7	22.6		28.1
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	15.0	30.0		35.0	15.0	30.0		35.0
Max Q Clear Time (g_c+I1), s	5.9	5.6		15.0	5.8	12.4		16.5
Green Ext Time (p_c), s	0.3	3.1		6.1	0.3	2.8		5.9

Intersection Summary	
HCM 2010 Ctrl Delay	17.2
HCM 2010 LOS	B

Intersection	
Intersection Delay, s/veh	10.5
Intersection LOS	B

Movement	WBU	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT
Traffic Vol, veh/h	0	105	125	0	135	110	5	155	85
Future Vol, veh/h	0	105	125	0	135	110	5	155	85
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	0	0	0	2	2	2	1	1	1
Mvmt Flow	0	118	140	0	152	124	6	174	96
Number of Lanes	0	1	1	0	1	0	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	9.8	10.4	11.3
HCM LOS	A	B	B

Lane	NBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	100%	0%	65%
Vol Thru, %	55%	0%	0%	35%
Vol Right, %	45%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	245	105	125	245
LT Vol	0	105	0	158
Through Vol	135	0	0	87
RT Vol	110	0	125	0
Lane Flow Rate	275	118	140	275
Geometry Grp	2	7	7	2
Degree of Util (X)	0.358	0.206	0.198	0.385
Departure Headway (Hd)	4.684	6.277	5.064	5.04
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	763	567	701	707
Service Time	2.754	4.07	2.856	3.112
HCM Lane V/C Ratio	0.36	0.208	0.2	0.389
HCM Control Delay	10.4	10.7	9.1	11.3
HCM Lane LOS	B	B	A	B
HCM 95th-tile Q	1.6	0.8	0.7	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	25	165	0	25	30	195	305	5	10	165	70
Future Volume (veh/h)	260	25	165	0	25	30	195	305	5	10	165	70
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1881	1881	1900	1863	1900	1845	1845	1900	1863	1863	1900
Adj Flow Rate, veh/h	274	26	174	0	26	32	205	321	5	11	174	74
Adj No. of Lanes	0	1	1	0	1	0	1	2	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	2	2	2	3	3	3	2	2	2
Cap, veh/h	397	38	370	0	63	78	253	1227	19	15	262	111
Arrive On Green	0.24	0.24	0.24	0.00	0.08	0.08	0.14	0.35	0.35	0.01	0.21	0.21
Sat Flow, veh/h	1643	156	1532	0	745	917	1757	3532	55	1774	1236	525
Grp Volume(v), veh/h	300	0	174	0	0	58	205	159	167	11	0	248
Grp Sat Flow(s),veh/h/ln	1799	0	1532	0	0	1662	1757	1752	1835	1774	0	1761
Q Serve(g_s), s	8.8	0.0	5.7	0.0	0.0	1.9	6.6	3.8	3.8	0.4	0.0	7.5
Cycle Q Clear(g_c), s	8.8	0.0	5.7	0.0	0.0	1.9	6.6	3.8	3.8	0.4	0.0	7.5
Prop In Lane	0.91		1.00	0.00		0.55	1.00		0.03	1.00		0.30
Lane Grp Cap(c), veh/h	435	0	370	0	0	141	253	609	638	15	0	373
V/C Ratio(X)	0.69	0.00	0.47	0.00	0.00	0.41	0.81	0.26	0.26	0.74	0.00	0.67
Avail Cap(c_a), veh/h	926	0	789	0	0	770	407	939	983	100	0	635
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.1	0.0	18.9	0.0	0.0	25.3	24.2	13.6	13.6	28.8	0.0	21.1
Incr Delay (d2), s/veh	1.5	0.0	0.7	0.0	0.0	1.4	2.5	0.2	0.2	22.9	0.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.0	2.4	0.0	0.0	0.9	3.4	1.8	1.9	0.3	0.0	3.9
LnGrp Delay(d),s/veh	21.6	0.0	19.6	0.0	0.0	26.7	26.7	13.9	13.9	51.7	0.0	23.1
LnGrp LOS	C		B			C	C	B	B	D		C
Approach Vol, veh/h		474			58			531			259	
Approach Delay, s/veh		20.8			26.7			18.8			24.3	
Approach LOS		C			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		18.6	12.9	17.3		9.4	5.0	25.2
Change Period (Y+Rc), s		4.5	4.5	5.0		4.5	4.5	5.0
Max Green Setting (Gmax), s		30.0	13.5	21.0		27.0	3.3	31.2
Max Q Clear Time (g_c+I1), s		10.8	8.6	9.5		3.9	2.4	5.8
Green Ext Time (p_c), s		1.9	0.1	2.7		0.2	0.0	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	21.0
HCM 2010 LOS	C

Intersection	
Intersection Delay, s/veh	11.5
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	25	70	155	0	55	55	70	5	85	155	40
Future Vol, veh/h	0	25	70	155	0	55	55	70	5	85	155	40
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	1	1	1	1	2	2	2	2	1	1	1	1
Mvmt Flow	0	28	79	174	0	62	62	79	6	96	174	45
Number of Lanes	0	1	1	0	0	1	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	2	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	2	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	2	2
HCM Control Delay	12.1	10.5	11.8
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%
Vol Thru, %	0%	79%	0%	31%	0%	44%	0%	83%
Vol Right, %	0%	21%	0%	69%	0%	56%	0%	17%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	90	195	25	225	55	125	15	115
LT Vol	90	0	25	0	55	0	15	0
Through Vol	0	155	0	70	0	55	0	95
RT Vol	0	40	0	155	0	70	0	20
Lane Flow Rate	101	219	28	253	62	140	17	129
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.187	0.365	0.052	0.402	0.118	0.232	0.033	0.227
Departure Headway (Hd)	6.656	6.004	6.726	5.73	6.856	5.95	6.957	6.324
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	539	598	531	627	522	601	513	566
Service Time	4.404	3.752	4.478	3.482	4.611	3.704	4.715	4.083
HCM Lane V/C Ratio	0.187	0.366	0.053	0.404	0.119	0.233	0.033	0.228
HCM Control Delay	10.9	12.2	9.8	12.3	10.5	10.5	10	10.9
HCM Lane LOS	B	B	A	B	B	B	A	B
HCM 95th-tile Q	0.7	1.7	0.2	1.9	0.4	0.9	0.1	0.9

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	15	95	20
Future Vol, veh/h	0	15	95	20
Peak Hour Factor	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	17	107	22
Number of Lanes	0	1	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	10.8
HCM LOS	B

Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	240	156	59	305	60	180	69	65	145	189	115
Future Volume (veh/h)	30	240	156	59	305	60	180	69	65	145	189	115
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.93	0.98		0.95	0.98		0.93	0.96		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1863	1863	1900
Adj Flow Rate, veh/h	34	270	175	66	343	67	202	78	73	163	212	129
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	2	2	2
Cap, veh/h	308	403	261	268	589	115	406	257	241	540	299	182
Arrive On Green	0.39	0.39	0.39	0.39	0.39	0.39	0.11	0.30	0.30	0.09	0.28	0.28
Sat Flow, veh/h	964	1036	672	935	1516	296	1792	860	804	1774	1059	644
Grp Volume(v), veh/h	34	0	445	66	0	410	202	0	151	163	0	341
Grp Sat Flow(s),veh/h/ln	964	0	1708	935	0	1812	1792	0	1664	1774	0	1703
Q Serve(g_s), s	2.0	0.0	14.7	4.3	0.0	12.2	5.3	0.0	4.8	4.3	0.0	12.3
Cycle Q Clear(g_c), s	14.2	0.0	14.7	19.0	0.0	12.2	5.3	0.0	4.8	4.3	0.0	12.3
Prop In Lane	1.00		0.39	1.00		0.16	1.00		0.48	1.00		0.38
Lane Grp Cap(c), veh/h	308	0	664	268	0	704	406	0	498	540	0	481
V/C Ratio(X)	0.11	0.00	0.67	0.25	0.00	0.58	0.50	0.00	0.30	0.30	0.00	0.71
Avail Cap(c_a), veh/h	428	0	876	384	0	930	604	0	732	766	0	749
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.1	0.0	17.2	25.1	0.0	16.5	15.6	0.0	18.4	14.8	0.0	22.0
Incr Delay (d2), s/veh	0.2	0.0	1.3	0.5	0.0	0.8	0.9	0.0	0.3	0.3	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	7.2	1.1	0.0	6.2	2.6	0.0	2.2	2.1	0.0	6.0
LnGrp Delay(d),s/veh	22.2	0.0	18.5	25.6	0.0	17.2	16.6	0.0	18.8	15.1	0.0	23.9
LnGrp LOS	C		B	C		B	B		B	B		C
Approach Vol, veh/h		479			476			353			504	
Approach Delay, s/veh		18.8			18.4			17.5			21.1	
Approach LOS		B			B			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.3	25.4		31.5	12.4	24.3		31.5
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	15.0	30.0		35.0	15.0	30.0		35.0
Max Q Clear Time (g_c+I1), s	6.3	6.8		16.7	7.3	14.3		21.0
Green Ext Time (p_c), s	0.3	3.4		6.3	0.3	3.0		5.5

Intersection Summary	
HCM 2010 Ctrl Delay	19.1
HCM 2010 LOS	B

Intersection	
Intersection Delay, s/veh	11.3
Intersection LOS	B

Movement	WBU	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT
Lane Configurations									
Traffic Vol, veh/h	0	152	125	0	145	110	5	155	89
Future Vol, veh/h	0	152	125	0	145	110	5	155	89
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	0	0	0	2	2	2	1	1	1
Mvmt Flow	0	171	140	0	163	124	6	174	100
Number of Lanes	0	1	1	0	1	0	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	10.8	11.2	12
HCM LOS	B	B	B

Lane	NBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	100%	0%	64%
Vol Thru, %	57%	0%	0%	36%
Vol Right, %	43%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	255	152	125	249
LT Vol	0	152	0	158
Through Vol	145	0	0	91
RT Vol	110	0	125	0
Lane Flow Rate	287	171	140	280
Geometry Grp	2	7	7	2
Degree of Util (X)	0.395	0.306	0.204	0.413
Departure Headway (Hd)	4.964	6.453	5.238	5.318
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	728	558	685	680
Service Time	2.972	4.18	2.965	3.327
HCM Lane V/C Ratio	0.394	0.306	0.204	0.412
HCM Control Delay	11.2	12	9.3	12
HCM Lane LOS	B	B	A	B
HCM 95th-tile Q	1.9	1.3	0.8	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	25	165	0	25	30	238	305	5	10	165	74
Future Volume (veh/h)	260	25	165	0	25	30	238	305	5	10	165	74
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1881	1881	1900	1863	1900	1845	1845	1900	1863	1863	1900
Adj Flow Rate, veh/h	274	26	174	0	26	32	251	321	5	11	174	78
Adj No. of Lanes	0	1	1	0	1	0	1	2	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	2	2	2	3	3	3	2	2	2
Cap, veh/h	391	37	364	0	62	76	299	1311	20	15	254	114
Arrive On Green	0.24	0.24	0.24	0.00	0.08	0.08	0.17	0.37	0.37	0.01	0.21	0.21
Sat Flow, veh/h	1643	156	1532	0	745	916	1757	3532	55	1774	1213	544
Grp Volume(v), veh/h	300	0	174	0	0	58	251	159	167	11	0	252
Grp Sat Flow(s),veh/h/ln	1799	0	1532	0	0	1661	1757	1752	1835	1774	0	1757
Q Serve(g_s), s	9.4	0.0	6.0	0.0	0.0	2.0	8.5	3.9	3.9	0.4	0.0	8.2
Cycle Q Clear(g_c), s	9.4	0.0	6.0	0.0	0.0	2.0	8.5	3.9	3.9	0.4	0.0	8.2
Prop In Lane	0.91		1.00	0.00		0.55	1.00		0.03	1.00		0.31
Lane Grp Cap(c), veh/h	428	0	364	0	0	138	299	650	681	15	0	368
V/C Ratio(X)	0.70	0.00	0.48	0.00	0.00	0.42	0.84	0.24	0.25	0.74	0.00	0.69
Avail Cap(c_a), veh/h	874	0	744	0	0	726	384	885	927	95	0	597
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.5	0.0	20.2	0.0	0.0	26.9	24.8	13.4	13.4	30.6	0.0	22.6
Incr Delay (d2), s/veh	1.6	0.0	0.7	0.0	0.0	1.5	10.0	0.2	0.2	23.4	0.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	0.0	2.6	0.0	0.0	1.0	4.9	1.9	2.0	0.3	0.0	4.2
LnGrp Delay(d),s/veh	23.1	0.0	21.0	0.0	0.0	28.4	34.8	13.6	13.6	53.9	0.0	24.8
LnGrp LOS	C		C			C	C	B	B	D		C
Approach Vol, veh/h		474			58			577			263	
Approach Delay, s/veh		22.3			28.4			22.8			26.0	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		19.2	15.0	17.9		9.6	5.0	27.9
Change Period (Y+Rc), s		4.5	4.5	5.0		4.5	4.5	5.0
Max Green Setting (Gmax), s		30.0	13.5	21.0		27.0	3.3	31.2
Max Q Clear Time (g_c+I1), s		11.4	10.5	10.2		4.0	2.4	5.9
Green Ext Time (p_c), s		1.9	0.1	2.6		0.2	0.0	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	23.5
HCM 2010 LOS	C

Intersection	
Intersection Delay, s/veh	13.9
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Vol, veh/h	0	35	112	183	0	55	55	70	5	114	155	40
Future Vol, veh/h	0	35	112	183	0	55	55	70	5	114	155	40
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	1	1	1	1	2	2	2	2	1	1	1	1
Mvmt Flow	0	39	126	206	0	62	62	79	6	128	174	45
Number of Lanes	0	1	1	0	0	1	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	2	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	2	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	2	2
HCM Control Delay	16.4	11.5	13.3
HCM LOS	C	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%
Vol Thru, %	0%	79%	0%	38%	0%	44%	0%	57%
Vol Right, %	0%	21%	0%	62%	0%	56%	0%	43%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	119	195	35	295	55	125	15	166
LT Vol	119	0	35	0	55	0	15	0
Through Vol	0	155	0	112	0	55	0	95
RT Vol	0	40	0	183	0	70	0	71
Lane Flow Rate	134	219	39	331	62	140	17	187
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.269	0.401	0.079	0.575	0.129	0.257	0.035	0.347
Departure Headway (Hd)	7.24	6.584	7.192	6.241	7.506	6.594	7.524	6.707
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	497	548	500	580	478	545	476	535
Service Time	4.96	4.304	4.909	3.957	5.247	4.335	5.267	4.45
HCM Lane V/C Ratio	0.27	0.4	0.078	0.571	0.13	0.257	0.036	0.35
HCM Control Delay	12.6	13.7	10.5	17.1	11.4	11.6	10.5	13
HCM Lane LOS	B	B	B	C	B	B	B	B
HCM 95th-tile Q	1.1	1.9	0.3	3.6	0.4	1	0.1	1.5

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Vol, veh/h	0	15	95	71
Future Vol, veh/h	0	15	95	71
Peak Hour Factor	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	17	107	80
Number of Lanes	0	1	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	12.8
HCM LOS	B

Appendix D:Typical and Peak Scenario Activity Forecasts

The activity forecasts that follow were developed in collaboration with MICA, based on current forecasts of activity, as well as allowances for future unknown class, rehearsal, and performance activity. These forecasts describe anticipated typical and maximum scenarios, but should not be viewed as detailed usage schedules. In practice, class and performance schedules will vary from day to day, week to week, and year to year.

When developing actual class and performance schedules in the future, MICA's decisions will be informed by the detailed understanding of parking loads and trip generation provided by this report. If questions or unanticipated conditions arise, MICA will coordinate with the City of Mercer Island.

Mercer Island Center for the Arts

Design Forecast: Typical Activity

NOTE: the class and performance blocks outlined below are estimated forecasts of possible activity at MICA. The actual class and performance times may vary.

M/Tu/W/Th

Hours in the Day

	9	10	11	12	1	2	3	4	5	6	7	8	9
Admin offices	staff (7)									staff (2)			
Music Studios (4)							Individual instruction 1h blocks						
Classroom 1		Preschool 90m: 10, 11:30					Class 90m: 3, 4:30, 6						
Classroom 2		Adult class 90m 10:15, 11:45					Class 90m: 3:15, 4:45, 6:15						
Classroom 3							Class 90m: 3:30, 5, 6:30						
Recital studio				Preschool 90m 12, 1:30			Class 90m: 2:45, 4:15, 5:45, 7:15						
Blackbox						Class 90m: 2:30, 4				Rehearsal 3h: 6			
Mainstage					prep as needed				tech		Performance 75%		

People per block

Time	9:00	9:15	9:30	9:45	10:00	10:15	10:30	10:45	11:00	11:15	11:30	11:45	12:00	12:15	12:30	12:45	13:00	13:15	13:30	13:45	14:00	14:15	14:30	14:45	15:00	15:15	15:30	15:45	16:00	16:15	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	18:30	18:45	19:00	19:15	19:30	19:45	20:00	20:15	20:30	20:45	21:00	staff	child students/ performers	adult students/ performers	audience
Admin offices																																																		7		2	
Music Studios (4)																																																		4	4		
Classroom 1																																																		1	15		
Classroom 2																																																		1	15	10	
Classroom 3																																																		1	10		
Recital studio																																																		1	15		
Blackbox																																																		1	15		
Mainstage																																																		5	5		300
Inbound Total (Trip Gen - Includes Drop Off and Pick Up)	7	0	0	0	16	11	0	0	0	0	31	11	16	0	0	0	15	0	31	0	0	0	16	31	10	16	11	0	43	31	55	31	38	5	19	33	74	57	72	26	12	31	15	15	14	0	0	15	22		499	13	512
Inbound Total	7	0	0	0	16	11	0	0	0	0	16	11	16	0	0	0	0	0	16	0	0	0	16	16	10	16	11	0	24	16	40	16	24	5	0	18	40	42	62	26	8	16	0	0	0	0	0	0	0				
Staff	7				1	1					1	1	1						1				1	1	5	1	1		5	1	6	1	5	5		1	6	1	1		4	1										
Performer					15	10					15	10	15						15				15	15	5	15	10		19	15	34	15	19			17	34	15	10		4	15										
Audience																																						26	51	26										102				
Inbound Parkers	7	0	0	0	1	11	0	0	0	0	1	11	1	0	0	0	0	0	1	0	0	0	1	1	5	1	1	0	5	1	6	1	5	5	0	1	6	27	52	26	4	1	0	0	0	0	0	0	0				
Outbound Total (Trip Gen- Includes Drop Off and Pick Up)	0	0	0	0	15	0	0	0	0	0	31	11	15	0	0	0	16	11	31	0	0	0	15	31	5	15	10	0	43	31	50	31	38	0	24	40	74	31	21	0	12	31	16	16	19	0	0	16	130				512
Outbound Total	0	0	0	0	0	0	0	0	0	0	16	11	0	0	0	0	16	11	16	0	0	0	0	16	0	0	0	0	24	16	16	16	19	0	24	23	40	16	11	0	8	16	16	16	19	0	0	16	130				
Staff											1	1					1	1	1					1					5	1	1	1	5		5	8	6	1	1		4	1	1	1	5			1	6				
Performer											15	10					15	10	15					15					19	15	15	15	14		19	15	34	15	10		4	15	15	15	14			15	22				
Audience																																																	102				
Outbound Parkers	0	0	0	0	0	0	0	0	0	0	1	11	0	0	0	0	1	11	1	0	0	0	1	1	0	0	0	0	5	1	1	1	5	0	5	8	6	1	1	0	4	1	1	1	5	0	0	1	108				
M/Tu/W/Th Base Parking Demand	7	7	7	7	8	19	19	19	19	19	19	19	20	20	20	20	19	8	8	8	8	8	9	9	14	15	16	16	16	16	21	21	21	26	21	14	14	40	91	117	117	117	116	115	110	110	110	109	1				
Drop-off and Pick-up Activity																																																					
Drop-off Total					15						15		15						15				15	15	5	15	10		19	15	34	15	19			17	34	15	10		4	15			14			15	22				
Pick-up Total											15						15		15				15	15					19	15	15	15	14		19	15	14	15	10		4	15	15	15					22				
Using Loading Area	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	6	0	6	0	0	0	0	6	0	0	0	0	6	6	6	0	6	0	6	6	6	6	6	0	4	6	6	6	6	0	0	6	6				
Load Zone Spillover	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	9	0	9	0	0	0	0	9	0	0	0	0	13	9	9	9	8	0	13	9	28	9	4	0	0	9	9	9	8	0	0	9	16				
M/Tu/W/Th Parking Demand with Load Zone Spillover	7	7	7	7	8	19	19	19	19	19	28	19	20	20	20	20	28	8	17	8	8	8	9	18	14	15	16	16	29	25	30	30	29	26	34	23	42	49	95	117	117	126	125	124	118	110	110	118	17				

Friday

Hours in the Day

	9	10	11	12	1	2	3	4	5	6	7	8	9
Admin offices	staff (7)										staff (2)		
Music Studios (4)							Individual instruction 1h blocks						
Classroom 1		Preschool 90m: 10, 11:30					Class 90m: 3, 4:30						
Classroom 2		Adult class 90m 10:15, 11:45					Class 90m: 3:15, 4:45						
Classroom 3							Class 90m: 3:30, 5						
Recital studio				Preschool 90m 12, 1:30			Class 90m: 2:45, 4:15						
Blackbox							Class 90m: 2:30, 4						
Mainstage					prep as needed				tech		Performance 75%		

People per block

Time	9:00	9:15	9:30	9:45	10:00	10:15	10:30	10:45	11:00	11:15	11:30	11:45	12:00	12:15	12:30	12:45	13:00	13:15	13:30	13:45	14:00	14:15	14:30	14:45	15:00	15:15	15:30	15:45	16:00	16:15	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	18:30	18:45	19:00	19:15	19:30	19:45	20:00	20:15	20:30	20:45	21:00	staff	child students/ performers	adult students/ performers	audience
Admin offices																																																		7		2	
Music Studios (4)																																																		4	4		
Classroom 1																																																		1	15		
Classroom 2																																																		1	15	10	
Classroom 3																																																		1	10		
Recital studio																																																		1	15		
Blackbox																																																		1	15		
Mainstage																																																		5	20		300
Inbound Total (Trip Gen - Includes Drop Off and Pick Up)	7	0	0	0	16	11	0	0	0	0	31	11	16	0	0	0	15	0	31	0	0	0	16	31	10	16	11	0	43	31	31	31	53	5	15	15	27	41	61	26	14	0	0	0	4	0	0	0	22		399	13	412
Inbound Total	7	0	0	0	16	11	0	0	0	0	16	11	16	0	0	0	0	0	16	0	0	0	16	16	10	16	11	0	24	16	16	16	39	5	0	0	8	26	51	26	10	0	0	0	0	0	0	0	0				
Staff	7				1	1					1	1	1						1				1	1	5	1	1		5	1			5	5			4				4										
Performer					15	10					15	10	15						15				15	15	5	15	10		19	15	15	15	34				4				6										
Audience																																						26	51	26										102				
Inbound Parkers	7	0	0	0	1	11	0	0	0	0	1	11	1	0	0	0	0	0	1	0	0	0	1	1	5	1	1	0	5	1	1	1	5	5	0	0	4	26	51	26	4	0	0	0	0	0	0	0	0				
Outbound Total (Trip Gen- Includes Drop Off and Pick Up)	0	0	0	0	15	0	0	0	0	0	31	11	15	0	0	0	16	11	31	0	0	0	15	31	5	15	10	0	43	31	31	31	53	0	16	16	28	16	11	0	21	0	0	0	8	0	0	0	129				412
Outbound Total	0	0	0	0	0	0	0	0	0	0	16	11	0	0	0	0	16	11	16	0	0	0	0	16	0	0	0	0	24	16	16	16	19	0	16	16	24	16	11	0	15	0	0	0	8	0	0	0	129				
Staff											1	1					1	1	1					1					5	1	1	1	5		1	1	5	1	1		11				4				5				
Performer											15	10					15	10	15					15					19	15	15	15	14		15	15	19	15	10		4				4				22				
Audience																																																		102				
Outbound Parkers	0	0	0	0	0	0	0	0	0	0	1	11	0	0	0	0	1	11	1	0	0	0	0	1	0	0	0	0	5	1	1	1	5	0	1	1	5	1	1	0	11	0	0	0	4	0	0	0	107				
Friday Base Parking Demand	7	7	7	7	8	19	19	19	19	19	19	19	20	20	20	20	19	8	8	8	8	8	9	9	14	15	16	16	16	16	16	16	16	21	20	19	18	43	93	119	112	112	112	112	108	108	108	108	1				
Drop-off and Pick-up Activity																																																				
Drop-off Total					15						15		15						15				15	15	5	15	10		19	15	15	15	34				4				6										
Pick-up Total											15						15		15				15	15					19	15	15	15	14		15	15	19	15	10		4				4				22				
Using Loading Area	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	6	0	6	0	0	0	0	6	0	0	0	0	6	6	6	0	6	0	6	6	6	6	6	0	4	0	0	0	4	0	0	0	6				
Load Zone Spillover	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	9	0	9	0	0	0	0	9	0	0	0	0	15	9	9	9	8	0	9	9	13	9	4	0	0	0	0	0	0	0	0	0	16				
Friday Parking Demand with Load Zone Spillover	7	7	7	7	8	19	19	19	19	19	28	19	20	20	20	20	28	8	17	8	8	8	9	18	14	15	16	16	31	25	25	25	24	21	29	28	31	52	97	119	112	112	112	112	108	108	108	108	17				

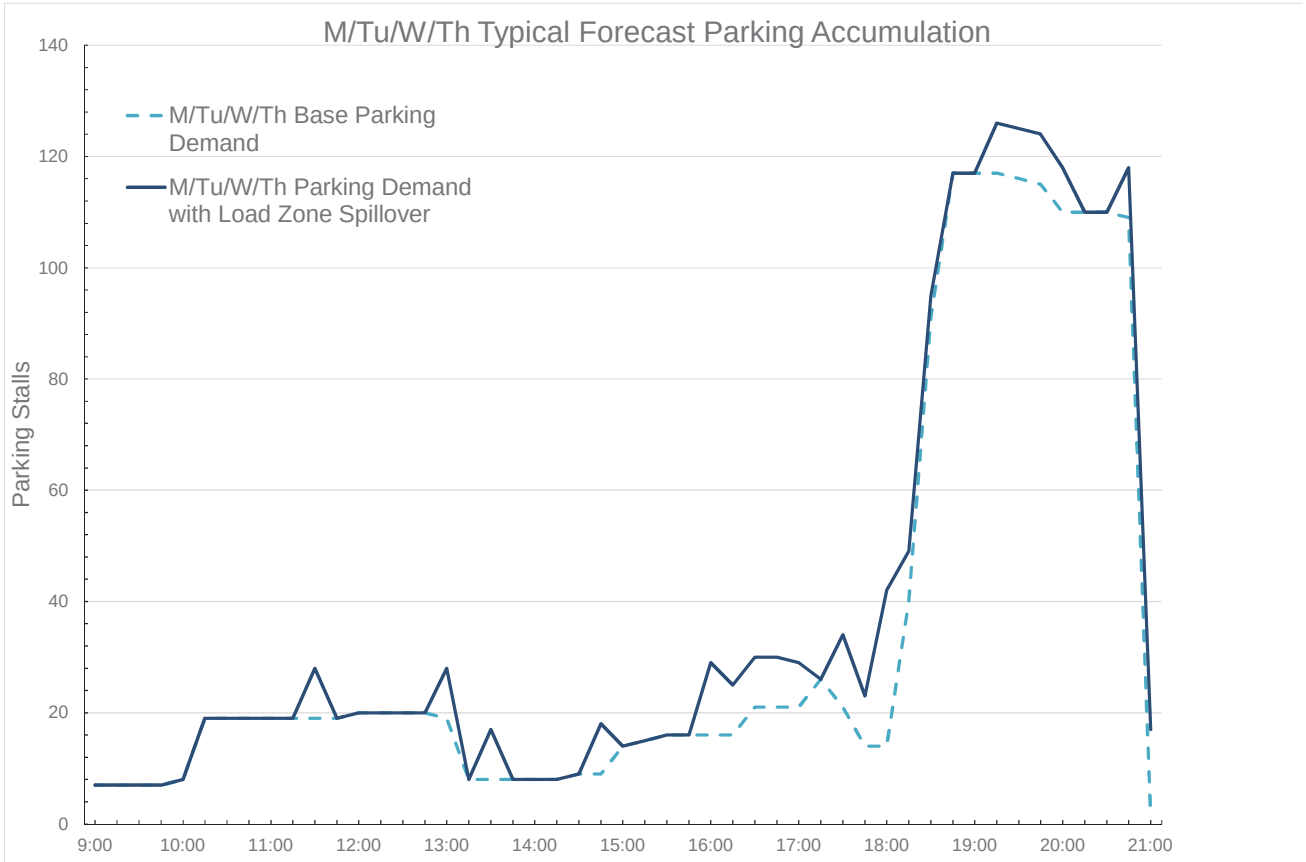
Saturday

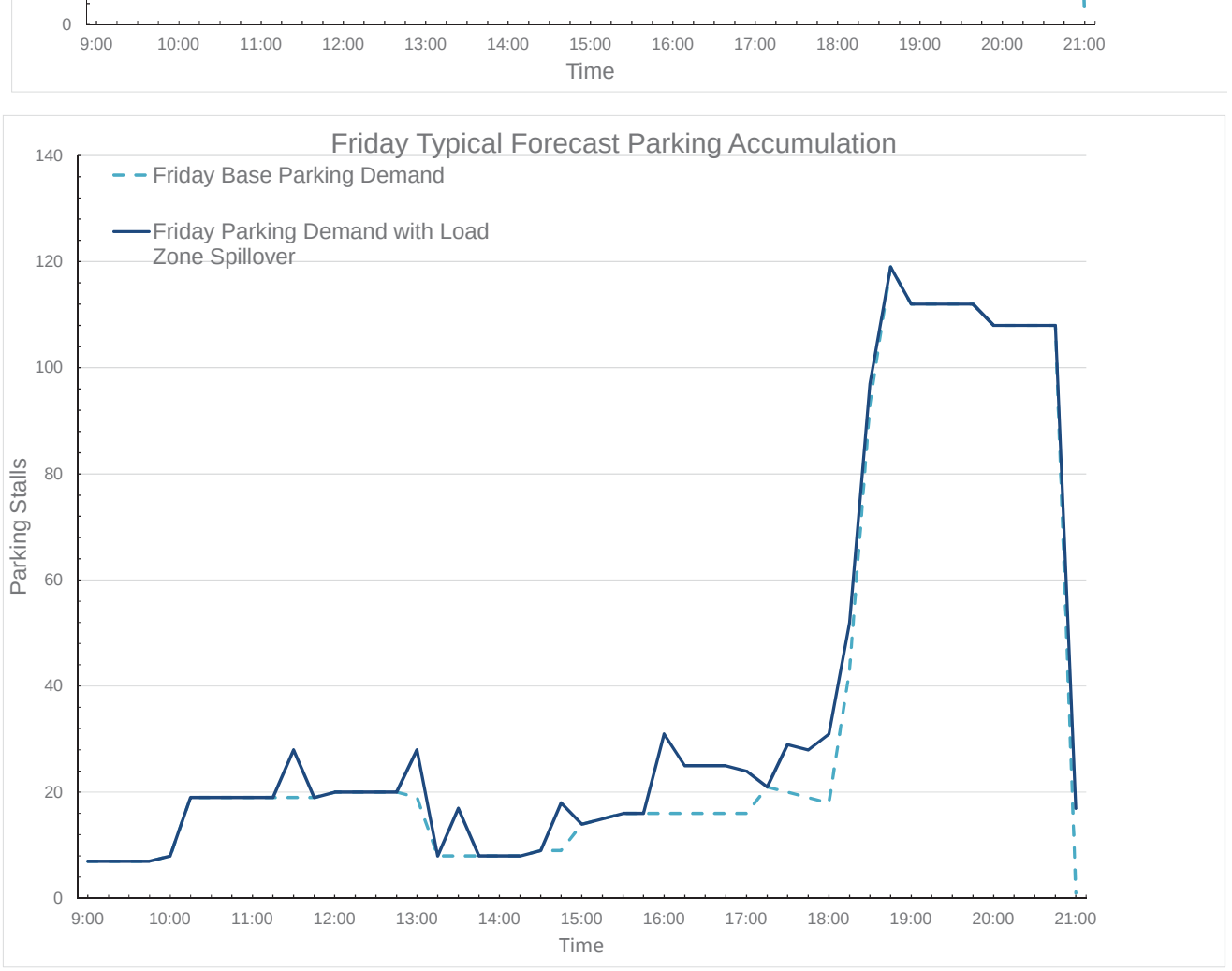
Hours in the Day

	9	10	11	12	1	2	3	4	5	6	7	8	9
Admin offices									staff (2)				
Music Studios (4)				Individual instruction 1h blocks									
Classroom 1				Class 90m: 9, 10:30, 12, 1:30, 3, 4:30									
Classroom 2				Class 90m: 9:15, 10:45, 12:15, 1:45, 3:15, 4:45									
Classroom 3				Class 90m: 9:30, 11, 12:30, 2, 3:30, 5									
Recital studio				Class 90m: 9:45, 11:15, 12:45, 2:15, 3:45, 5:15									
Blackbox				Class 90m: 8:45, 10:15, 11:45, 1:15, 2:45, 4:15									
Mainstage									tech		Performance 75%		

People per block

Time	9:00	9:15	9:30	9:45	10:00	10:15	10:30	10:45	11:00	11:15	11:30	11:45	12:00	12:15	12:30	12:45	13:00	13:15	13:30	13:45	14:00	14:15	14:30	14:45	15:00	15:15	15:30	15:45	16:00	16:15	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	18:30	18:45	19:00	19:15	19:30	19:45	20:00	20:15	20:30	20:45	21:00	staff	child students/ performers	adult students/ performers	audience
Admin offices																																																		2			
Music Studios (4)																																																		4	4		
Classroom 1																																																		1	15		
Classroom 2																																																		1	15		
Classroom 3																																																		1	10		
Recital studio																																																		1	15		
Blackbox																																																		1	15		
Mainstage																																																		5	20		300
Inbound Total (Trip Gen - Includes Drop Off and Pick Up)	40	16	11	16	12	31	31	31	33	31	0	31	45	31	21	31	12	31	26	31	33	31	0	31	43	31	21	31	12	31	31	31	50	31	0	15	15	41	61	41	0	0	0	0	0	0	0	0	20		639	0	639
Inbound Total	40	16	11	16	8	16	16	16	19	16	0	16	26	16	11	16	8	16	11	16	19	16	0	16	24	16	11	16	8	16	16	16	36	16	0	0	0	26	51	26	0	0	0	0	0	0	0	0	0				
Staff	6	1	1	1	4	1	1	1	5	1		1	7	1	1	1	4	1	1	1	5	1		1	5	1	1	1	4	1	1	1	6	1																		
Performer	34	15	10	15	4	15	15	15	14	15		15	19	15	10	15	4	15	10	15	14	15		15	19	15	10	15	4	15	15	15	30	15																		
Audience																																						26	51	26														
Inbound Parkers	6	1	1	1	4	1	1	1	5	1	0	1	7	1	1	1	4	1	1	1	5	1	0	1	5	1	1	1	4	1	1	1	6	1	0	0	0	26	51	26	0	0	0	0	0	0	0	0	0				
Outbound Total (Trip Gen- Includes Drop Off and Pick Up)	34	15	10	15	12	31	31	31	33	31	0	31	43	31	21	31	12	31	26	31	33	31	0	31	43	31	21	31	12	31	31	31	45	31	0	16	16	16	11	16	0	0	0	0	0	0	0	0	129				639
Outbound Total	0	0	0	0	8	16	16	16	19	16	0	16	24	16	11	16	8	16	16	16	19	16	0	16	24	16	11	16	8	16	16	16	15	16	0	16	16	16	11	16	0	0	0	0	0	0	0	0	129				
Staff					4	1	1	1	5	1		1	5	1	1	1	4	1	1	1	5	1		1	5	1	1	1	4	1	1	1	1	1		1	1	1	1	1										7			
Performer					4	15	15	15	14	15		15	19	15	10	15	4	15	15	15	14	15		15	19	15	10	15	4	15	15	15	14	15		15	15	15	10	15										20			
Audience																																																		102			
Outbound Parkers	0	0	0	0	4	1	1	1	5	1	0	1	5	1	1	1	4	1	1	1	5	1	0	1	5	1	1	1	4	1	1	1	1	1	0	1	1	1	1	1	0	0	0	0	0	0	0	0	109				
Saturday Base Parking Demand	6	7	8	9	9	9	9	9	9	9	9	9	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	16	16	16	15	14	39	89	114	114	114	114	114	114	114	114	114	5				
Drop-off and Pick-up Activity																																																				
Drop-off Total	34	15	10	15	4	15	15	15	14	15		15	19	15	10	15	4	15	10	15	14	15		15	19	15	10	15	4	15	15	15	30	15																		
Pick-up Total					4	15	15	15	14	15		15	19	15	10	15	4	15	15	15	14	15		15	19	15	10	15	4	15	15	15	14	15		15	15	15	10	15										20			
Using Loading Area	0	0	0	0	4	6	6	6	6	6	0	6	6	6	6	6	4	6	6	6	6	6	0	6	6	6	6	6	4	6	6	6	6	6	0	6	6	6	6	6	0	0	0	0	0	0	0	0	6				
Load Zone Spillover	0	0	0	0	0	9	9	9	8	9	0	9	13	9	4	9	0	9	9	9	8	9	0	9	13	9	4	9	0	9	9	9	8	9	0	9	9	9	4	9	0	0	0	0	0	0	0	0	14				
Saturday Parking Demand with Load Zone Spillover	6	7	8	9	9	18	18	18	17	18	9	18	24	20	15	20	11	20	20	20	19	20	11	20	24	20	15	20	11	20	20	20	24	25	16	24	23	48	93	123	114	114	114	114	114	114	114	114	19				


M/Tu/W/Th Typical Forecast Parking Accumulation
M/Tu/W/Th Base Parking Demand
M/Tu/W/Th Parking Demand with Load Zone Spillover
Parking Stalls
0
20
40
60
80
100
120
140
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
Time


Friday Typical Forecast Parking Accumulation
Friday Base Parking Demand
Friday Parking Demand with Load Zone Spillover
Parking Stalls
0
20
40
60
80
100
120
140
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
Time

Saturday Typical Forecast Parking Accumulation
Saturday Base Parking Demand
Saturday Parking Demand with Load Zone Spillover
Parking Stalls
0
20
40
60
80
100
120
140
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
Time

Mercer Island Center for the Arts

Design Forecast: Peak Activity (Unusual)

NOTE: the class and performance blocks outlined below are estimated forecasts of possible activity at MICA. The actual class and performance times may vary.

M/Tu/W/Th

Hours in the day: 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9

	staff	child students/ performers	adult students/ performers	audience
Admin offices	staff (7)	staff (2)	7			
Music Studios (4)	Individual instruction 1h blocks		4	4		
Classroom 1	Preschool 90m: 10, 11:30	Class 90m: 3, 4:30, 6	1	15		
Classroom 2	Adult class 90m 10:15, 11:45	Class 90m: 3:15, 4:45, 6:15	1	15	10	
Classroom 3		Class 90m: 3:30, 5, 6:30	1	10		
Recital studio	Preschool 90m 12, 1:30	Class 90m: 2:45, 4:15, 5:45, 7:15	1	15		
Blackbox	Class 90m: 2:30, 4	Rehearsal 3h: 6	1	15		
Mainstage	prep as needed	tech	Performance 100%	5	5	300

Time	9:00	9:15	9:30	9:45	10:00	10:15	10:30	10:45	11:00	11:15	11:30	11:45	12:00	12:15	12:30	12:45	13:00	13:15	13:30	13:45	14:00	14:15	14:30	14:45	15:00	15:15	15:30	15:45	16:00	16:15	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	18:30	18:45	19:00	19:15	19:30	19:45	20:00	20:15	20:30	20:45	21:00	BUS	Total
Inbound Total (Trip Gen - Includes Drop Off and Pick Up)	7	0	0	0	16	11	0	0	0	0	31	11	16	0	0	0	15	0	31	0	0	0	16	31	10	16	11	0	43	31	55	31	38	5	19	33	74	65	89	34	12	31	15	15	14	0	0	15	22	532	14	546
Inbound Total	7	0	0	0	16	11	0	0	0	0	16	11	16	0	0	0	0	0	16	0	0	0	16	16	10	16	11	0	24	16	40	16	24	5	0	18	40	50	79	34	8	16	0	0	0	0	0	0	0			
Staff	7				1	1					1	1	1						1				1	1	5	1	1	1	5	1	6	1	5	5		1	6	1	1		4	1										
Performer					15	10					15	10	15						1				15	15	5	15	10		19	15	34	15	19			17	34	15	10		4	15										
Audience																																						34	68	34													
Inbound Parkers	7	0	0	0	1	11	0	0	0	0	1	11	1	0	0	0	0	0	1	0	0	0	1	1	5	1	1	0	5	1	6	1	5	5	0	1	6	35	69	34	4	1	0	0	0	0	0	0	0			
Outbound Total (Trip Gen- Includes Drop Off and Pick Up)	0	0	0	0	15	0	0	0	0	0	31	11	15	0	0	0	16	11	31	0	0	0	15	31	5	15	10	0	43	31	50	31	38	0	24	23	74	31	21	0	12	31	16	16	19	0	0	16	164		546
Outbound Total	0	0	0	0	0	0	0	0	0	0	16	11	0	0	0	0	16	11	16	0	0	0	0	16	0	0	0	0	24	16	16	16	19	0	24	23	40	16	11	0	8	16	16	16	19	0	0	16	164		
Staff											1	1					1	1	1					1					5	1	1	1	5		5	8	6	1	1		4	1	1	1	5			1	6			
Performer											15	10					15	10	15						19	15	15	15	14		19	15	34	15	10		4	15	15	15	14			15	22			
Audience																																																136		
Outbound Parkers	0	0	0	0	0	0	0	0	0	0	1	11	0	0	0	0	1	11	1	0	0	0	0	1	0	0	0	0	5	1	1	1	5	0	5	8	6	1	1	0	4	1	1	1	5	0	0	1	142		
M/Tu/W/Th Base Parking Demand	7	7	7	7	8	19	19	19	19	19	19	19	20	20	20	20	19	8	8	8	8	8	9	9	14	15	16	16	16	16	21	21	21	26	21	14	14	48	116	150	150	150	149	148	143	143	143	142	0		
Drop-off and Pick-up Activity																																																		
Drop-off Total					15						15		15						15				15	15	5	15	10		19	15	34	15	19				34	15	10		4	15										
Pick-up Total											15						15		15					15					19	15	15	15	14		19	15	34	15	10		4	15	15	15	14			15	22		
Using Loading Area	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	6	0	6	0	0	0	6	6	6	6	6	0	6	6	6	6	6	0	6	6	6	6	6	0	4	6	6	6	6	0	6	6	6		
Load Zone Spillover	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	9	0	9	0	0	0	0	9	0	0	0	0	13	9	9	9	8	0	13	9	28	9	4	0	0	9	9	9	8	0	0	9	16		
M/Tu/W/Th Parking Demand with Load Zone Spillover	7	7	7	7	8	19	19	19	19	19	28	19	20	20	20	20	28	8	17	8	8	8	9	18	14	15	16	16	29	25	30	30	29	26	34	23	42	57	120	150	150	159	158	157	151	143	143	151	16		

Friday

Hours in the day: 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9

	staff	child students/ performers	adult students/ performers	audience
Admin offices	staff (7)	staff (2)	7			
Music Studios (4)	Individual instruction 1h blocks		4	4		
Classroom 1	Preschool 90m: 10, 11:30	Class 90m: 3, 4:30	1	15		
Classroom 2	Adult class 90m 10:15, 11:45	Class 90m: 3:15, 4:45	1	15	10	
Classroom 3		Class 90m: 3:30, 5	1	10		
Recital studio	Preschool 90m 12, 1:30	Class 90m: 2:45, 4:15	1	15		
Blackbox	Class 90m: 2:30, 4	Perf 100% 7:30 - 9	1	15	4	100
Mainstage	prep as needed	tech	Performance 100%	5	20		300

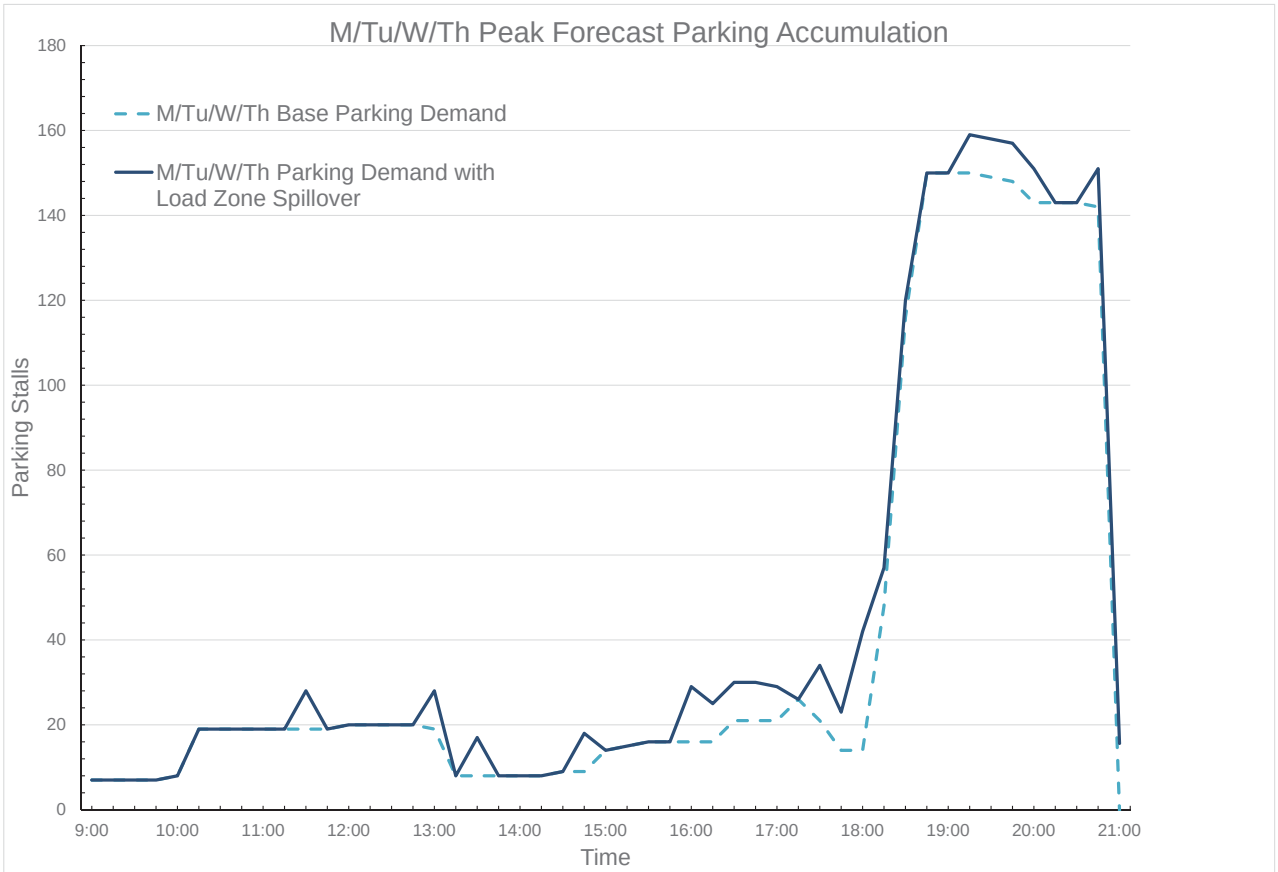
Time	9:00	9:15	9:30	9:45	10:00	10:15	10:30	10:45	11:00	11:15	11:30	11:45	12:00	12:15	12:30	12:45	13:00	13:15	13:30	13:45	14:00	14:15	14:30	14:45	15:00	15:15	15:30	15:45	16:00	16:15	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	18:30	18:45	19:00	19:15	19:30	19:45	20:00	20:15	20:30	20:45	21:00	BUS	Total
Inbound Total (Trip Gen - Includes Drop Off and Pick Up)	7	0	0	0	16	11	0	0	0	0	31	11	16	0	0	0	15	0	31	0	0	0	16	31	10	16	11	0	43	31	31	31	53	5	31	15	27	49	78	34	37	23	0	0	4	0	0	0	37	494	14	508
Inbound Total	7	0	0	0	16	11	0	0	0	0	16	11	16	0	0	0	0	0	16	0	0	0	16	16	10	16	11	0	24	16	16	16	39	5	16	0	8	34	68	34	33	23	0	0	0	0	0	0	0			
Staff	7				1	1					1	1	1						1					1	5	1	1	1	5	1	1	1	5	5	1		4				4										
Performer					15	10					15	10	15						15				15	15	5	15	10		19	15	15	15	34		15		4				6										
Audience																																						34	68	34	23	23										
Inbound Parkers	7	0	0	0	1	11	0	0	0	0	1	11	1	0	0	0	0	0	1	0	0	0	1	1	5	1	1	1	5	1	1	1	5	5	1	0	4	34	68	34	27	23	0	0	0	0	0	0	0			
Outbound Total (Trip Gen- Includes Drop Off and Pick Up)	0	0	0	0	15	0	0	0	0	0	31	11	15	0	0	0	16	11	31	0	0	0	15	31	5	15	10	0	43	31	31	31	53	0	31	16	28	16	11	0	21	0	0	0	8	0	0	46	179		508
Outbound Total	0	0	0	0	0	0	0	0	0	0	16	11	0	0	0	0	16	11	16	0	0	0	0	16	0	0	0	0	24	16	16	16	19	0	16	16	24	16	11	0	15	0	0	0	8	0	0	46	179		
Staff											1	1						1	1					1					5	1	1	1	5		1	1	5	1	1		11				4				6			
Performer											15	10					15	10	15					15	19	15	15	15	14		15	15	19	15	10		4				4								37		
Audience																																																46	136		
Outbound Parkers	0	0	0	0	0	0	0	0	0	0	1	11	0	0	0	0	1	11	1	0	0	0	0	1	0	0	0	0	5	1	1	1	5	0	1	1	5	1	1	0	11	0	0	0	4	0	0	46	142		
Friday Base Parking Demand	7	7	7	7	8	19	19	19	19	19	19	19	20	20	20	20	19	8	8	8	8	8	9	9	14	15	16	16	16	16	16	16	16	21	21	20	19	52	119	153	169	192	192	192	188	188	188	142	0		
Drop-off and Pick-up Activity																																																		
Drop-off Total					15						15		15						15				15	15	5	15	10		19	15	15	15	34		15		4				6										
Using Loading Area	0	0	0	0	6	0	0	0	0	0	6	0	6	0	0	0	0	0	6	0	0	0	6	6	6	6	6	0	6	6	6	6	6	0	6	6	4	0	0	0	6	0	0	0	0	0	0	0	0		
Park & walk	0	0	0	0	9	0	0	0	0	0	9	0	9	0	0	0	0	0	9	0	0	0	9	9	0	9	4	0	13	9	9	9	28	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Pick-up Total											15						15		15					15	19	15	15	15	14		15	15	19	15	10		4				4								37		
Using Loading Area	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	6	0	6	0	0	0	0	6	0	0	0	0	6	6	6	6	6	0	6	6	6	6	6	0	4	0	0	0	4	0	0	0	6		
Load Zone Spillover	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	9	0	9	0	0	0	0	9	0	0	0	0	13	9	9	9	8	0	9	9	8	0	0	0	0	0	0	0	0	0	0	0	31		
Friday Parking Demand with Load Zone Spillover	7	7	7	7	8	19	19	19	19	19	28	19	20	20	20	20	28	8	17	8	8	8	9	18	14	15	16	16	29	25	25	25	24	21	30	29	32	61	123	153	169	192	192	192	188	188	188	142	31		

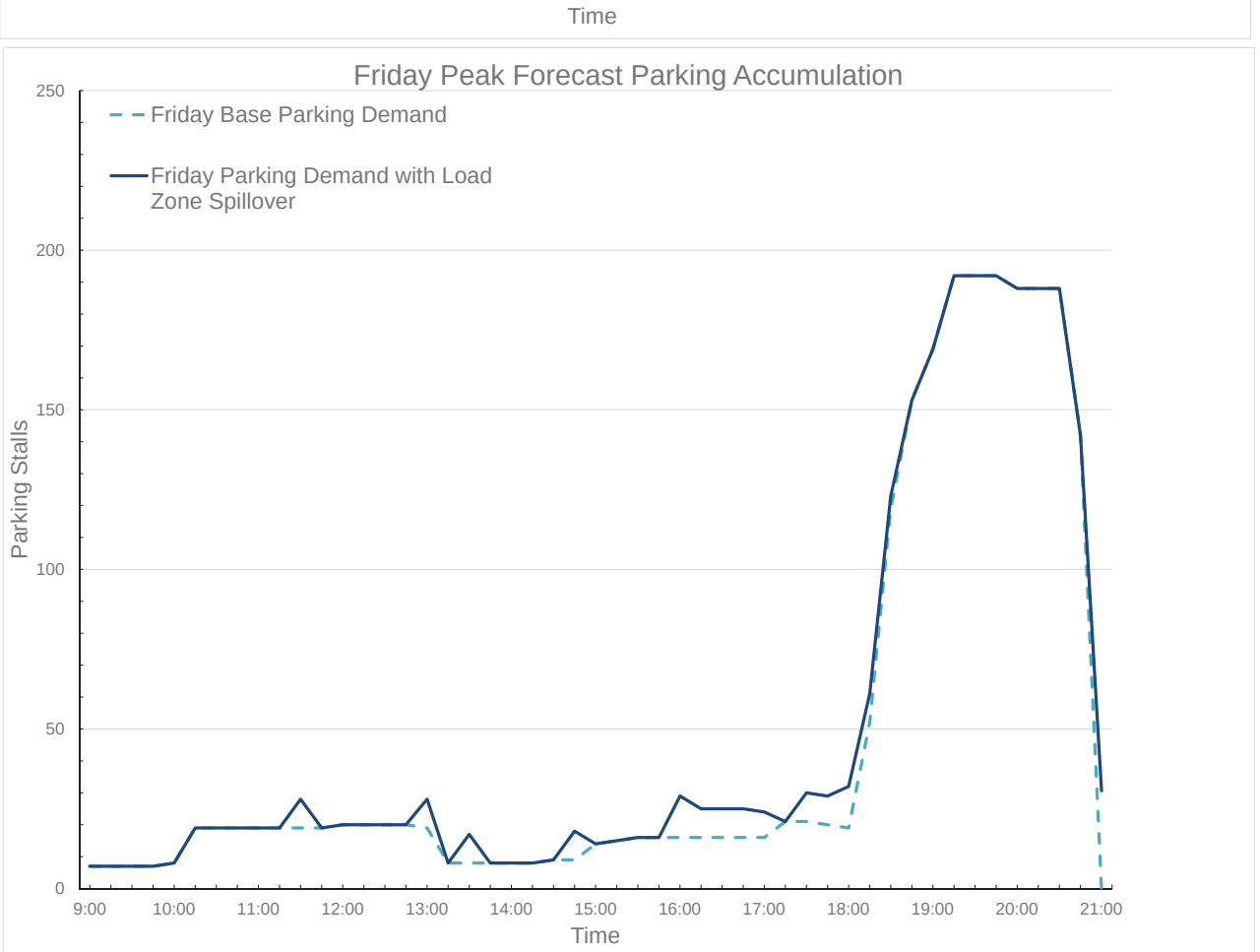
Saturday

Hours in the day: 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9

	staff	child students/ performers	adult students/ performers	audience
Admin offices	staff (2)	2			
Music Studios (4)	Individual instruction 1h blocks	4	4		
Classroom 1	Class 90m: 9, 10:30, 12, 1:30, 3, 4:30	1	15		
Classroom 2	Class 90m: 9:15, 10:45, 12:15, 1:45, 3:15, 4:45	1	15		
Classroom 3	Class 90m: 9:30, 11, 12:30, 2, 3:30, 5	1	10		
Recital studio	Class 90m: 9:45, 11:15, 12:45, 2:15, 3:45, 5:15	1	15		
Blackbox	Class 90m: 8:45, 10:15, 11:45, 1:15, 2:45, 4:15	Perf 100% 7:30 - 9	1	15		100
Mainstage	tech	Performance 75%	5	20		300

Time	9:00	9:15	9:30	9:45	10:00	10:15	10:30	10:45	11:00	11:15	11:30	11:45	12:00	12:15	12:30	12:45	13:00	13:15	13:30	13:45	14:00	14:15	14:30	14:45	15:00	15:15	15:30	15:45	16:00	16:15	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	18:30	18:45	19:00	19:15	19:30	19:45	20:00	20:15	20:30	20:45	21:00	BUS	Total
Inbound Total (Trip Gen - Includes Drop Off and Pick Up)	40	16	11	16	12	31	31	31	33	31	0	31	45	31	21	31	12	31	31	31	33	31	0	31	43	31	21	31	12	31	31	31	50	31	0	15	31	41	61	40	23	22	0	0	0	0	0	0	35	704	0	704
Inbound Total	40	16	11	16	8	16	16	16	19	16	0	16	26	16	11	16	8	16	16	16	19	16	0	16	24	16	11	16	8	16	16	16	36	16	0	0	16	26	51	25	23	22	0	0	0	0	0	0	0			
Staff	6	1	1	1	4	1	1	1	5	1		1	7	1	1	1	4	1	1	1	5	1		1	5	1	1	1	4	1	1	1	6	1			1															
Performer	34	15	10	15	4	15	15	15	14	15		15	19	15	10	15	4	15	15	15	14	15		15	4	15	15	15	8	16	16	16	30	15			15															
Audience																																						26	51	25	23	22										
Inbound Parkers	6	1	1	1	4	1	1	1	5	1	0	1	7	1	1	1	4	1	1	1	5	1	0	1	5	1	1	1	4	1	1	1	6	1	0	0	1	26	51	25	23	22	0	0	0	0	0	0	0			
Outbound Total (Trip Gen- Includes Drop Off and Pick Up)	34	15	10	15	12	31	31	31	33	31	0	31	43	31	21	31	12	31	31	31	33	31	0	31	43	31	21	31	12	31	31	31	49	31	0	16	31	16	11	16	0	0	0	0	0	0	0	45	145		704
Outbound Total	0	0	0	0	8	16	16	16	19	16	0	16	24	16	11	16	8	16	16	16	19	16	0	16	24	16	11	16	8	16	16	16	19	16	0	16	16	16	11	16	0	0	0	0	0	0	0	45	145		
Staff					4	1	1	1	5	1		1	5	1	1	1	4	1	1	1	5	1		1	5	1	1	1	4	1	1	1	5	1		1	1	1	1	1									8		
Performer					4	15	15	15	14	15		15	19	15	10	15	4	15	15	15	14	15		15	19	15	10	15	4	15	15	15	14	15		15	15	15	10	15									35		
Audience																																																45	102		
Outbound Parkers	0	0	0	0	4	1	1	1	5	1	0	1	5	1	1	1	4	1	1	1	5	1	0	1	5	1	1	1	4	1	1	1	5	1	0	1	1	1	1	1	0	0	0	0	0	0	0	45	110		
Saturday Base Parking Demand	6	7	8	9	9	9	9	9	9	9	9	9	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	12	12	12	11	11	36	86	110	133	155	155	155	155	155	155	155	155	155	155	110	0		
Drop-off and Pick-up Activity																																																		
Drop-off Total	34	15	10	15	4	15	15	15	14	15		15	19	15	10	15	4	15	15	15	14	15		15	19	15	10	15	4	15	15	15	30	15			15				0										
Using Loading Area	6	6	6	6	4	6	6	6	6	6	0	6	6	6	6	6	4	6	6	6	6	6	0	6	6	6	6	6	4	6	6	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Park & walk	28	9	4	9	0	9	9	9	8	9	0	9	13	9	4	9	0	9	9	9	8	9	0	9	13	9	4	9	0	9	9	9	24	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0		
Pick-up Total					4	15	15	15	14	15		15	19	15	10	15	4	15	15	15	14	15		15	19	15	10	15	4	15	15	15	14	15	0	15	15	15	10	15	0								35		
Using Loading Area	0	0	0	0	4	6	6	6	6	6	0	6	6	6	6	6	4	6	6	6	6	6	0	6	6	6	6	6	4	6	6	6	6	6	0	6	6	6	6	6	0	0	0	0	0	0	0	0	6		
Load Zone Spillover	0	0	0	0	0	9	9	9	8	9	0	9	13	9	4	9	0	9	9	9	8	9	0	9	13	9	4	9	0	9	9	9	8	0	0	0	9	9	4	9	0	0	0	0	0	0	0	0	29		
Saturday Parking Demand with Load Zone Spillover	6	7	8	9	9	18	18	18	17	18	9	18	24	20	15	20	11	20	20	20	19	20	11	20	24	20	15	20	11	20	20	20	20	21	12	20	20	45	90	119	133	155	155	155	155	155	155	110	29		


M/Tu/W/Th Peak Forecast Parking Accumulation
M/Tu/W/Th Base Parking Demand
M/Tu/W/Th Parking Demand with Load Zone Spillover
Parking Stalls
Time
0
20
40
60
80
100
120
140
160
180
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00


Friday Peak Forecast Parking Accumulation
Friday Base Parking Demand
Friday Parking Demand with Load Zone Spillover
Parking Stalls
Time
0
50
100
150
200
250
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00

Saturday Peak Forecast Parking Accumulation
Saturday Base Parking Demand
Saturday Parking Demand with Load Zone Spillover
Parking Stalls
Time
0
20
40
60
80
100
120
140
160
180
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00

Appendix E: On-Street Parking Utilization Study

On-Street Parking Utilization Study

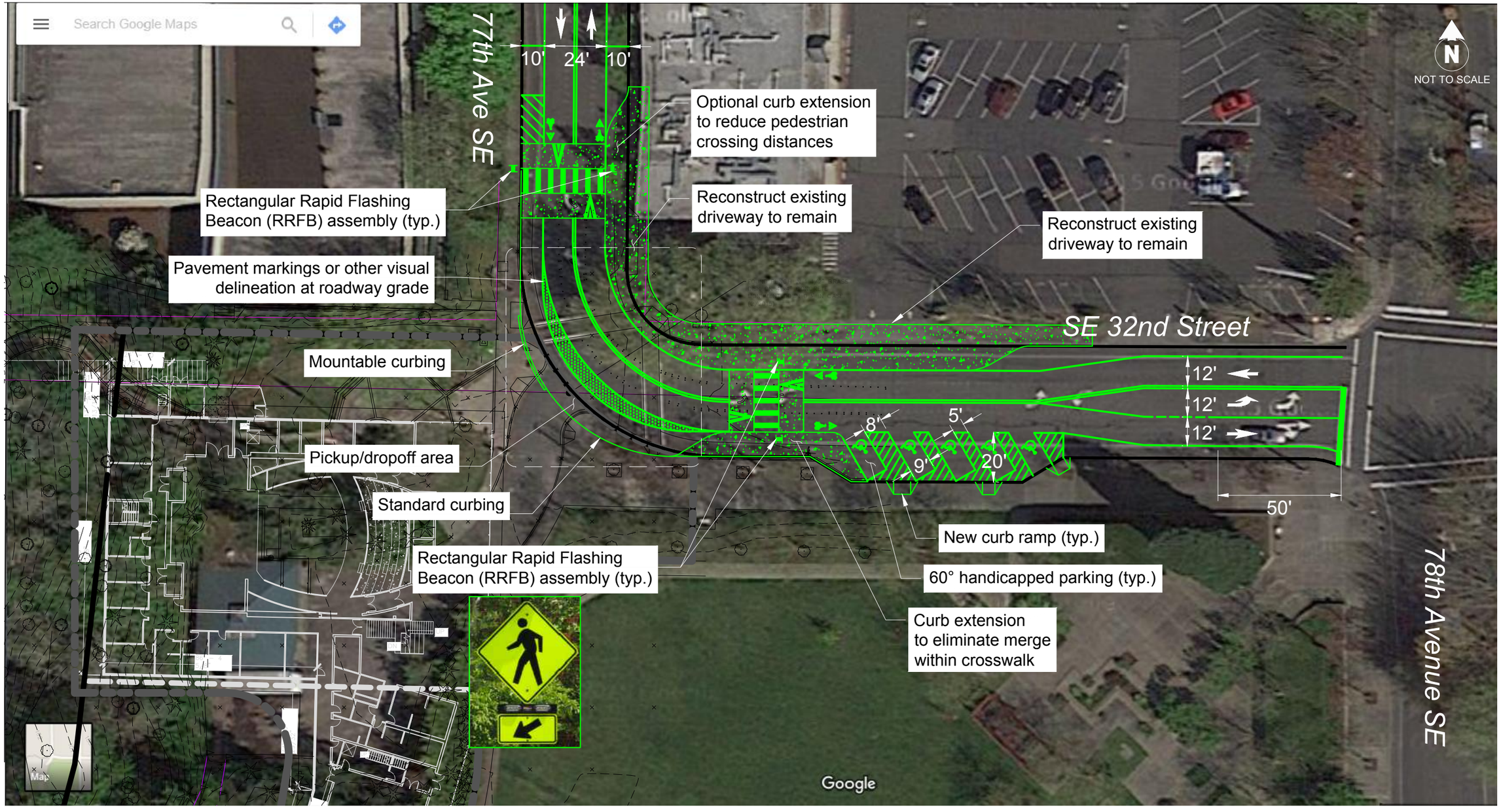
	Description	Distance from Site (ft)	Side	Supply	Average Demand Afternoon	Average Demand Evening	Demand 1 (2-3pm)	Demand 1 (6-7pm)	Demand 2 (2-3pm)	Demand 2 (6-7pm)
1	SE 29th St between 76th Ave SE & 77th Ave SE	1000	N	11	6.5	5	7	5	6	5
			S	8	5	3	7	3	3	3
2	SE 29th St between 77th Ave SE & 78th Ave SE	1000	N	4	3	3	2	5	4	1
			S	9	3	1.5	3	2	3	1
3	77th Ave SE between SE 29th St & SE 32nd St	800	E	0	0	0	0	0	0	0
			W	0	0	0	0	0	0	0
4	78th Ave SE between SE 29th St & SE 30th St	1000	E	0	0	0	0	0	0	0
			W	0	0	0	0	0	0	0
5	78th Ave SE between SE 30th St & SE 32nd St	800	E	0	0	0	0	0	0	0
			W	0	0	0	0	0	0	0
6	SE 32nd St between 77th Ave SE & 78th Ave SE	800	N	0	0	0	0	0	0	0
			S	4	1	1	2	2	0	0
7	SE 32nd St between 78th Ave SE & 80th Ave SE	800	N	7	4	1	4	1	4	1
			S	8	6	0.5	6	0	6	1
8	80th Ave SE between SE 30th St & SE 32nd St	1000	E	30	21.5	11	20	11	23	11
			W	12	10.5	7	12	6	9	8
9	78th Ave SE between SE 32nd St & SE 34th St	800	E	0	0	0	0	0	0	0
			W	0	0	0	0	0	0	0
10	80th Ave SE between SE 32nd St & SE 33rd Pl	1000	E	13	9	3.5	9	2	9	5
			W	0	0	0	0	0	0	0
11	80th Ave SE between SE 33rd Pl and SE 34th St	1200	E	10	1	1.5	1	2	1	1
			W	0	0	0	0	0	0	0
			Total	116	70.5	38	73	39	68	37

Based on two days of counts (afternoon and evening) conducted in April 2016 (Tuesday, April 26, 2016 and Wednesday, April 27, 2016)

On-Street Parking Supply	Spaces	Demand Afternoon	Demand Evening	Afternoon Utilization	Evening Utilization
Within 1200 feet of the site	116	71	38	61%	33%
Within 1000 feet of the site	106	70	37	66%	34%
Within 800 feet of the site	19	11	3	58%	13%

Appendix F:Proposed Design Concept

MATCHLINE - SEE FIGURE 2



77th Avenue SE/ SE 32nd Street Corner Concept

15249 Mercer Island Center for the Arts - November 9, 2016

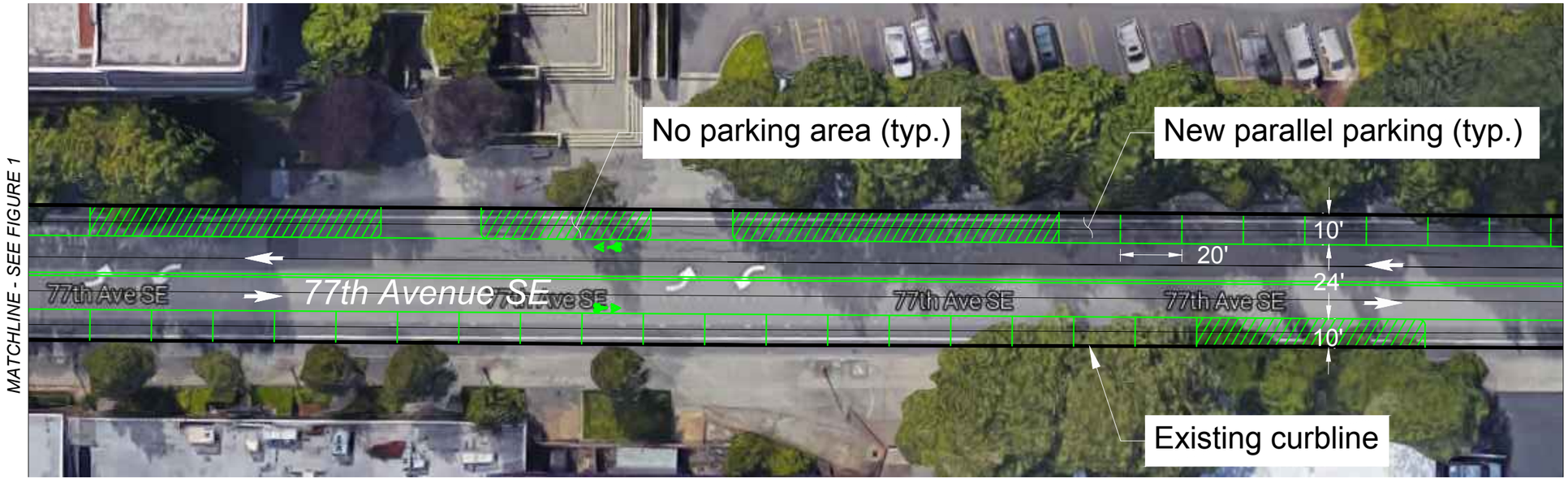
FIGURE
1

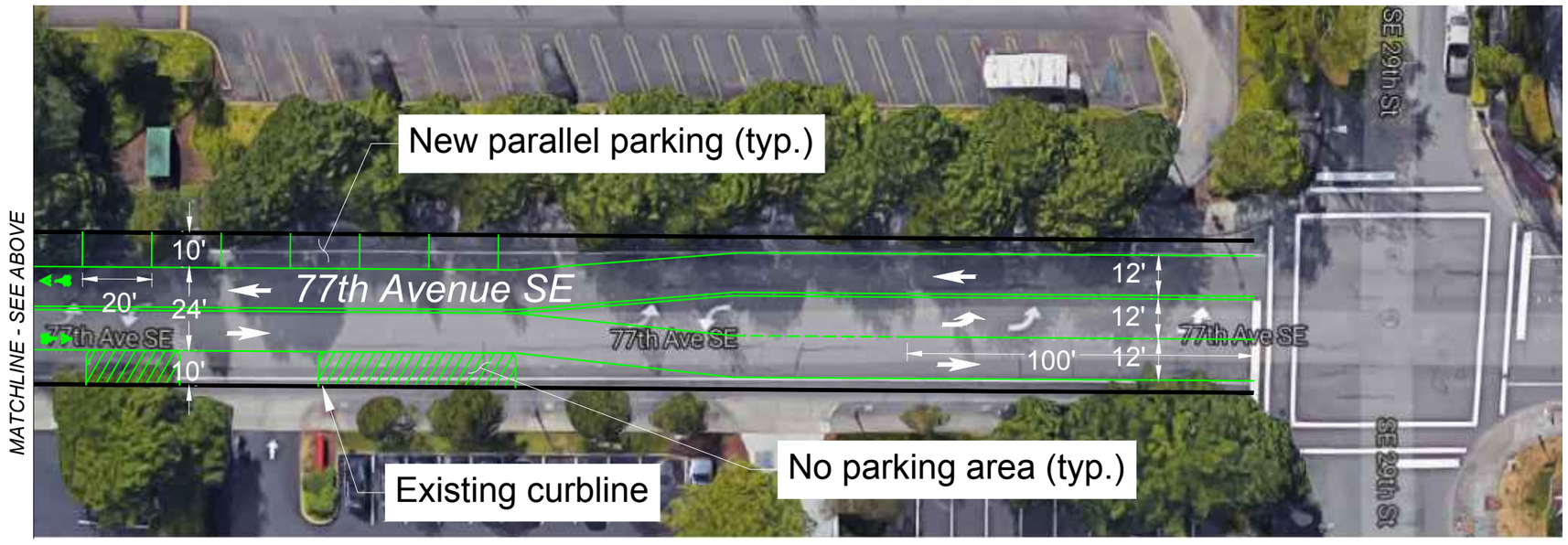
transpogroup
WHAT TRANSPORTATION CAN BE.

Nov 15, 2016 - 4:03pm muhannada M:\15\15249.00 - Mercer Island Center for the Arts\Engineering\CAD\Conceptual\MICA 32nd Ave SE Frontage.dwg Layout: Fig 1

N

NOT TO SCALE





77th Avenue SE On-Street Parking Concept

15249 Mercer Island Center for the Arts - November 9, 2016

FIGURE
2

transpogroup
WHAT TRANSPORTATION CAN BE.

Nov 09, 2016 - 3:24pm muhannada M:\15\15249.00 - Mercer Island Center for the Arts\Engineering\CAD\Conceptual\MICA 77th Ave SE Frontage.dwg Layout: Fig 1