Traffic Impact Analysis
&
Revised Parking Analysis

Islamic Center of Mukilteo

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Prepared for:
City of Mukilteo

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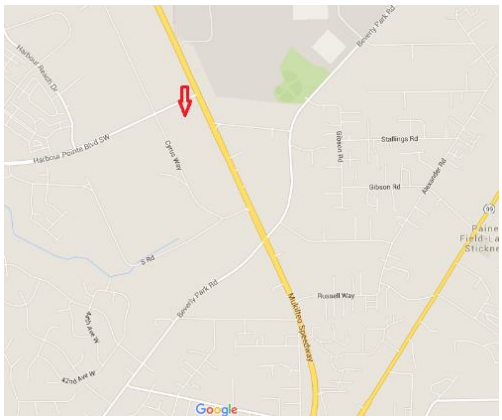
Project Location

The proposed development project is called The Islamic Center of Mukilteo. The project is located west of Mukilteo Speedway in Mukilteo, WA. It will construct an access driveway onto Harbor Pointe Blvd SW which is classified as a minor arterial. The project location is depicted on the vicinity map shown below:



Project Description and Building Uses

The proposed project is to construct a 3,796 square foot mosque building. Mosque building uses are similar to those of a church. It usually consists of an assembly (prayer) area(s), meeting rooms, offices, a kitchen, bathrooms and children's classrooms to be used on Sundays for children education. During prayer time, all people head towards the designated prayer area(s). This specific project also has a multi-purpose room to be used as kids play area, a meeting room and an overflow prayer area during peak demand on holidays and it could serve as another Sunday school classroom.

For a church use, Christmas attendance increases during the month of December. Similarly, during the Islamic month of "Ramadan", attendance usually increases in a mosque. The difference is that the month of Ramadan is based on a lunar calendar year and floats throughout the Gregorian calendar. Also, there are special night prayers that are usually held between 9 PM and midnight during the month of Ramadan.

There are two Islamic holidays per year where a special prayer is held between 9 AM and 11:30 AM. These two days are based on a lunar calendar and could fall on a weekday or a weekend.

The most critical difference between a church and a mosque weekly peak demand is that Christian prayers are held on Sunday mornings but Islamic prayers are held on Fridays at about noon. Friday prayers usually last for about 90 minutes and the start time depends on summer daylight saving time. But, they are always over by 2:30 PM.

The proposed project has a Sunday school program for up to 20 children which is anticipated to generate traffic between 9 AM and 2 PM.

For the remainder of the week, the proposed project is anticipated to generate some trips during morning prayers which always end by 7 AM and evening prayers that usually start after 7:30 PM. No

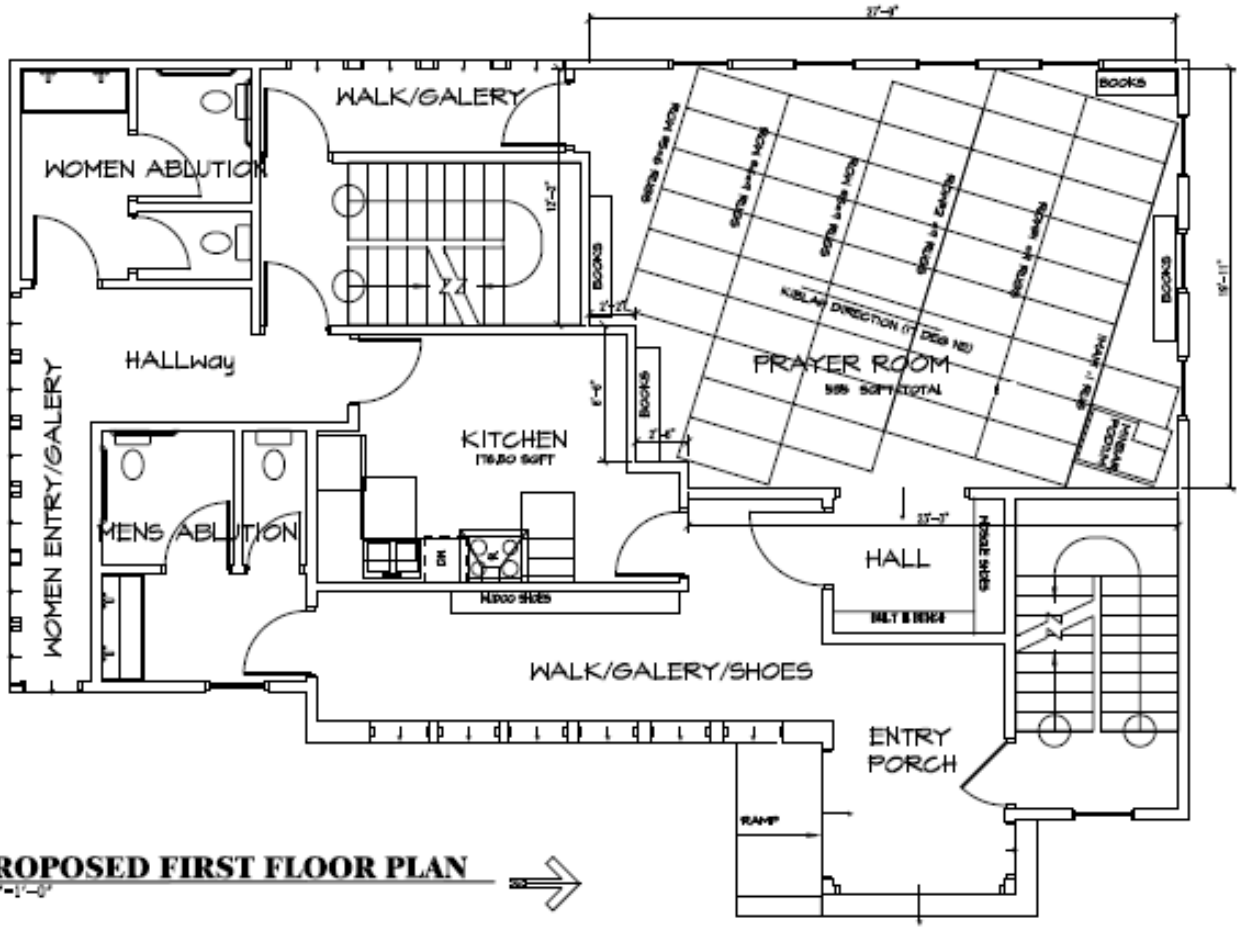
other uses are anticipated for the remainder of the weekday. It is critical to note that the proposed project is not anticipated to generate any trips between 2:30 PM and 6:30 PM.

Assembly Area Practical Capacity

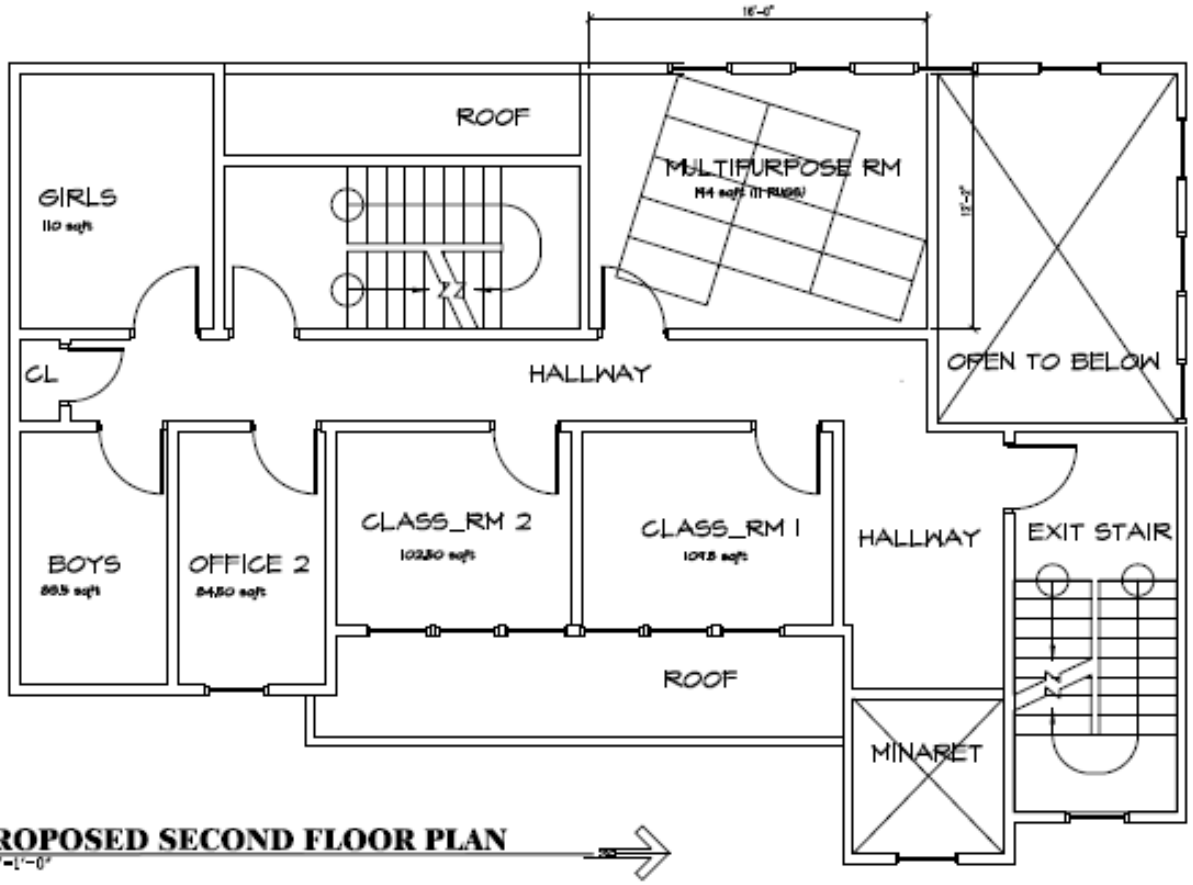
Unlike a church, there are no fixed seats in the assembly area. But, an Islamic prayer requires people to line up next to each other in straight lines behind the Imam (prayer leader). The imam is usually in the center of the room and occupies the first line. In Washington state, prayer lines are tilted 18 degrees northeast (this is called the Qiblah direction). The Islamic prayer involves standing up, bowing face down on the floor and sitting is specific positions (see side photos). Therefore and in order to accommodate such movements, each person requires a prayer space of: 2 feet wide by 4.5 feet long = 9 square feet per person. The 4.5' length determines the number of rows and the 2' width determine the number of seats per row in the assembly area.

Depending on the assembly area design and layout, the following might be needed: an audio center, a library for holy books, a speech platform for the Imam, presence of doors dictating access and circulation where walking isles might be needed for people to access the prayer spaces, storage place for chairs to be used for people with disabilities. The most critical factor is the site limitations that usually dictate the assembly area is that walls not being squared with the Qiblah direction. All of this usually creates up to 25 % inefficiencies in the maximum use of the prayer area limiting the assembly area practical capacity.
From the revised site plane, the practical capacity for the proposed project is calculated at 42 people for the assembly area on the main floor plus 11 people for the 2nd floor multi-purpose room. Therefore, the practical capacity or the maximum attendance that can be accommodated on site is now calculated at: **42 + 11 = 53 attendees**.

Therefore, the effective assembly area for this project is calculated at 53* 9 = 477 square feet. See site plane below.



PROPOSED FIRST FLOOR PLAN
1/4"=1'-0"



PROPOSED SECOND FLOOR PLAN
1/4"=1'-0"

Parking Requirement

A parking analysis dated October 24, 2015 was already submitted to the City where it was reviewed and approved. Unfortunately, due to topographic and environmental constraints, the building had to be rotated 90 degrees counter clock wise with a revised site plan (shown above) for a smaller building size.

Based on Mukilteo city code (see insert below), public assembly areas for multiple uses including a church use require 1 parking space for each 4 seats.

Chapter 17.56
OFF-STREET PARKING

17.56.040 Spaces required.

The required number of off-street parking spaces is as set out in Table 17.56.040. (Ord. 996 § 3, 1999; Ord. 884 § 10, 1996: Ord. 519 § 1 (part), 1985; Ord. 387 (part), 1982)

Table 17.56.040: Off-Street Parking Requirements	
Use Classification	***Number of Spaces Required***
31. Stadiums, churches, theaters, sports arenas, auditoriums, and clubs and lodges and all assembly places with fixed seats	*1 per 4 seats or 8 feet of bench or pew*

As indicated above, even though there are no physical seats or benches in a mosque assembly area, however, the individual seating spaces are depicted utilizing clearly marked prayer rug spaces (2ft wide X 4.5ft long per person). Therefore, each prayer space can be used as the seat definition in table 17.56.040 which in turn can be used for the minimum parking calculation. Please note that the above table reaffirms the prayer seating space rug of 2 feet wide per person as it uses 8 feet of bench being equivalent to 4 seats and every 4 eats require one (1) parking stall. Each parking stall is also equal to one peak hour of generator trip during Friday prayers.

Since the practical and maximum attendance during Friday prayers is calculated at 53 people, the minimum parking calculation per City code is calculated at 53/4 = 13.25 **or 14 parking stalls**.

Trip Generation

Based on the ITE Trip Generation manual 9th Edition, the worst case scenario of traffic impacts for most developments onto the roadway network are normally during the evening peak hours of (4:00 PM – 6:00 PM). But, per Mukilteo City Code 3.107.030 definition:

"P.M. peak-hour vehicle trips" means the total number of vehicle trips traveling to or from a development project during a consecutive sixty-minute period occurring sometime between the hours of 2:30 p.m. and 6:30 p.m."

The ITE manual identified a mosque with Land Use Code (LUC) 562. However, it is listed as an independent variables with one observation for a 7,000 building. What is critical is that on page 1112 it does identify the mosque AM peak hour of generator to be between 6:00 and 7:00 AM which is within the definition of the AM peak hour of adjacent traffic. The definition also indicates that the PM peak

hour of generator occurs after 7:30 PM which is outside the City's PM peak hour code definition. Finally, LUC 562 does not show the total daily trips, but the manual lists a church (LUC 560) as related and similar land use. The manual indicates that a church is expected to generate 9.11 weekday trips per 1000 square feet gross floor area.

It is critical to note that the proposed project is a small scale mosque and is only intended to serve the immediate community surrounding the site. The two basic functions are Friday prayers and a Sunday school children program. Also, the project is proposed on a very difficult site as it is encumbered by wetlands, grade, and environmental issues. Therefore, there are extreme limitations on the building shape, size, layout and orientation which in turn introduces building use limitations and severely reduces the normal efficiency of the prayer area. For example, in order to reduce the building footprint, the proposed building consists of a two-story building with two bathrooms in each floor. As discussed above and as another example, is that the efficiency of the assembly area practical capacity is severely affected by the building orientation and layout. Therefore, careful consideration should be given when dealing with trip generation based on the 3,796 sf gross floor area versus the 477 sf assembly area practical capacity which only represents 13% of the total square footage. Therefore, we believe that the specific building use, congregation size, and prayer area practical capacity can be used as additional variables for trip generation purposes.

Following is a summary table of project trip generation:

	Size	Unit	Rate	Trips
New AM Peak Hour (5:300 am - 7:00 am)	3796	sq ft	1.63	6
New PM Peak Hour (2:30 pm - 6:30 pm)	0	Attendees	0	0
Friday Peak Hour of Generator (12:00 pm - 2:00 pm)	53	Attendees	0.25	14
Sunday Peak Hour of Generator (9:00 am - 2:00 pm)	20	Children	0.5	10
Daily Trips	3796	sq ft	9.11	35

Concurrency Requirements

As discussed above and per City code 17.15.020.B.3, the prosed development does not generate any new PM Peak hour trips between 2:30 pm and 6:30 pm. Therefore, the project it is exempt from concurrency requirements and is considered concurrent and is meeting the growth management mandates. Hence, no further analysis is warranted.

17.15.020 Application of chapter—Exemptions.

B. The uses listed below are exempt from the concurrency requirements of this chapter:

3. Development that creates no additional impact on any transportation facility by not adding any p.m. peak- hour traffic.

Transportation Impacts, Impact Fees & Frontage Improvements

As discussed above and per City code 3.107.03 definition, the prosed development generates zero new PM peak hour trips between 2:30 pm and 6:30 pm. Therefore, the proposed project does not have any significant impacts onto the roadway system and the impact fees are calculated at zero. The peak hour of generator trips on Fridays are also insignificant as there will be less than 10 new trips at any City intersection. However, the project fronts Pointe Blvd SW which is already programmed for improvements by the City. Even though, the City did dot finalize the design of its project, the development project is expected to dedicate up to 12 foot of Right Of Way along the entire frontage to facilitate the future City project.

Conclusion

The proposed project is for a small-scale mosque building located on a difficult site. It will construct more than the minimum parking required per City code and will not have any significant impacts onto the roadway system. We trust that this document is sufficient to address all City concerns regarding parking, trip generation calculations, concurrency, PM peak hour significant impacts, and impact fee calculation. Per discussions with the city's planning manager, the proposed project is anticipated to dedicate up to 12 foot of ROW for a programmed City project along Harbor Pointe Blvd SW.