The City of Kirkland currently has a project underway to design northbound Business Access and Transit (BAT) lanes on the 6th Street S/108th Avenue NE corridor between NE 53rd Street and NE 68th Street. This technical memorandum describes the traffic analysis conducted to determine the appropriate BAT lane length(s) to advance further in design by evaluating the potential improvement in general purpose and transit travel times along 108th Avenue NE. The overall goal of the project is to improve transit speed and reliability on the corridor both for current and future bus service.

The technical analysis used projected PM peak traffic volumes for 2035 and 2044 to model traffic operations performance including intersection Level of Service (LOS) and queue lengths at three intersections on this corridor: 9th Ave S and 6th St S, NE 68th St and 108th Ave NE, and NE 60th St and 108th Ave NE. The analysis results were used to evaluate the business access transit (BAT) lane lengths. In conclusion the memorandum found:

1. A new traffic signal at the NE 60th St intersection does not meet signal warrants; therefore the signal and northbound BAT lane south of NE 60th St are not recommended.
2. A northbound BAT lane at the NE 68th St intersection would provide both transit travel time and general-purpose vehicle travel time benefits. The appropriate BAT lane length was recommended to be 800ft in length in the northbound approach (south of the intersection) with a 150ft receiving lane on the north leg of the intersection.
3. Maximum northbound transit travel times on the corridor would be reduced by up to 1.8 minutes.
4. Average peak hour northbound transit travel times would be reduced by 11 seconds, and average peak hour northbound general-purpose traffic travel times would be reduced by nearly 1 minute.

Thus the technical analysis found the project would improve transit speed and reliability and meet the project goal. **Note:** this analysis did assume a conservative travel time delay for buses to merge back into general purpose traffic, and the analysis did not include other transit speed and reliability changes that would be considered for future bus service as part of the RapidRide K Line project such as bus stop consolidation, transit signal priority, or other changes.