



MEMORANDUM

Madison Corridor BRT Study – Existing Conditions Memo #4: Traffic and Safety

Prepared For: City of Seattle

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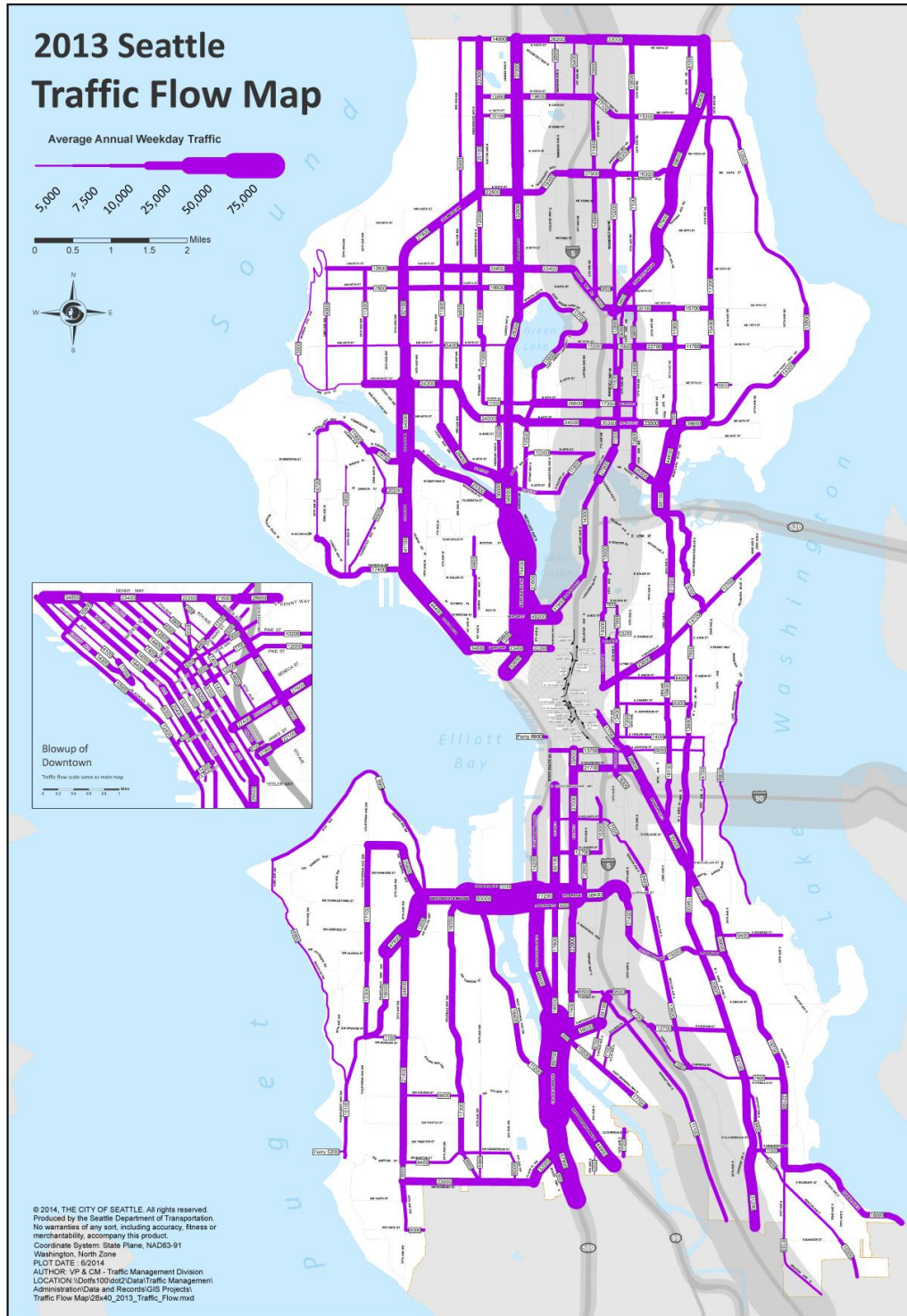
Date: December 12, 2014

This memo provides an overview of existing traffic volumes and delay, parking policy and availability, and safety-related data in the Madison BRT corridor. Traffic modeling for the Madison BRT Study has not yet begun, so the information in this document is based on available data from SDOT as well as previous modeling efforts in the corridor. Parking occupancy data was partly provided by SDOT and partly collected specifically for this project. Safety data are based on a five-year query of SDOT's reported collision database as well as operator incident reports for King County Metro bus Routes 2, 11, and 12.

1 TRAFFIC

Madison Street is one of few east-west arterials in Central and East Seattle. Figure 1-1 shows citywide traffic volumes in 2013. Between 5th Avenue downtown and Broadway, Annual Average Daily Traffic (AADT) on Madison Street is approximately 27,400 vehicles. Between Broadway and 23rd Avenue volumes decline to 23,600, and even further to 14,700 between 23rd Avenue and Lake Washington Boulevard. East of Lake Washington Boulevard, AADT is 12,700 vehicles.

Figure 1-1 2013 Seattle Traffic Map



Intersection Levels of Service (LOS) and turning volumes are shown in Figure 1-2 and Figure 1-3. In the morning peak period, all intersections east of 12th Avenue and west of I-5 operate at LOS A or B. LOS is lower at intersections approaching I-5 from the east, likely due to I-5-bound traffic. Only one intersection – Madison and Boren – operates at LOS E. In the afternoon peak period, several intersections along the corridor operate at LOS C, and the intersections of Madison and Broadway and Fifth and Marion operate at LOS D.

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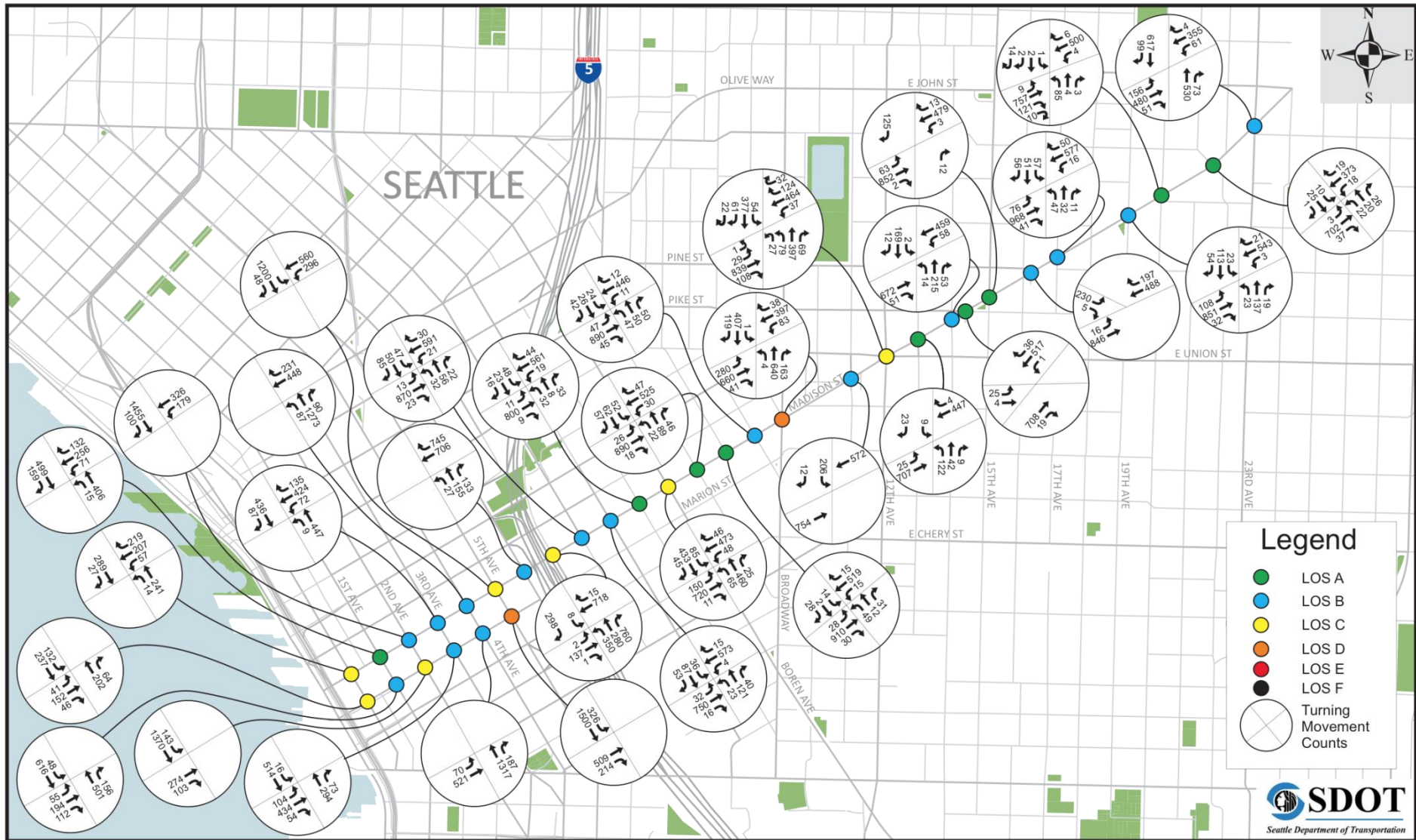
Figure 1-2 AM Peak Hour LOS and Turning Movements



*data compiled from three Synchro models 2006,2007 and 2009

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Figure 1-3 PM Peak Hour LOS and Turning Movements



*data compiled from three Synchro models 2006, 2007 and 2009

2 PARKING

Parking occupancy data for different time periods are shown in Figure 2-1, 2-2, and 2-3. Data provided by SDOT were used for paid parking spaces on Madison Street and intersecting blocks. For unpaid areas on Madison itself, additional data were collected on a recent (October) weekday every two hours from 8 a.m. to 7 p.m.

Throughout the corridor, average all-day occupancy is 62 percent, well below the city's target of 70 to 85 percent occupancy. Observed occupancy is lowest in the morning peak period (56 percent) and afternoon peak period (62 percent) and highest during the midday (72 percent). These figures likely overstate availability, however, as this analysis does not account for peak-period restrictions on some spaces; instead, supply is assumed to remain constant throughout the day. In reality there are various parking restrictions on Madison, particularly between 3 and 7 p.m. when parking on the south side of the street is prohibited.

Parking utilization is mixed throughout the corridor, with heavily-used spaces Downtown on Madison and Marion streets from Second to Sixth Avenues and in First Hill on many of Madison's cross streets. In the eastern segment of the corridor, parking occupancy is high near the intersection of Madison Street and 12th Avenue. During the midday period, several blocks in these areas are above 100 percent of official capacity (this may indicate illegal parking, or simply smaller vehicles requiring less space than is assumed for each parking space on blockfaces where spaces are not defined). Parking utilization is moderate east of 20th Avenue and in Downtown Seattle near the waterfront.

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Figure 2-1 Morning Parking Occupancy (8-10 AM)



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Figure 2-2 Middy Parking Occupancy (10 AM-4 PM)

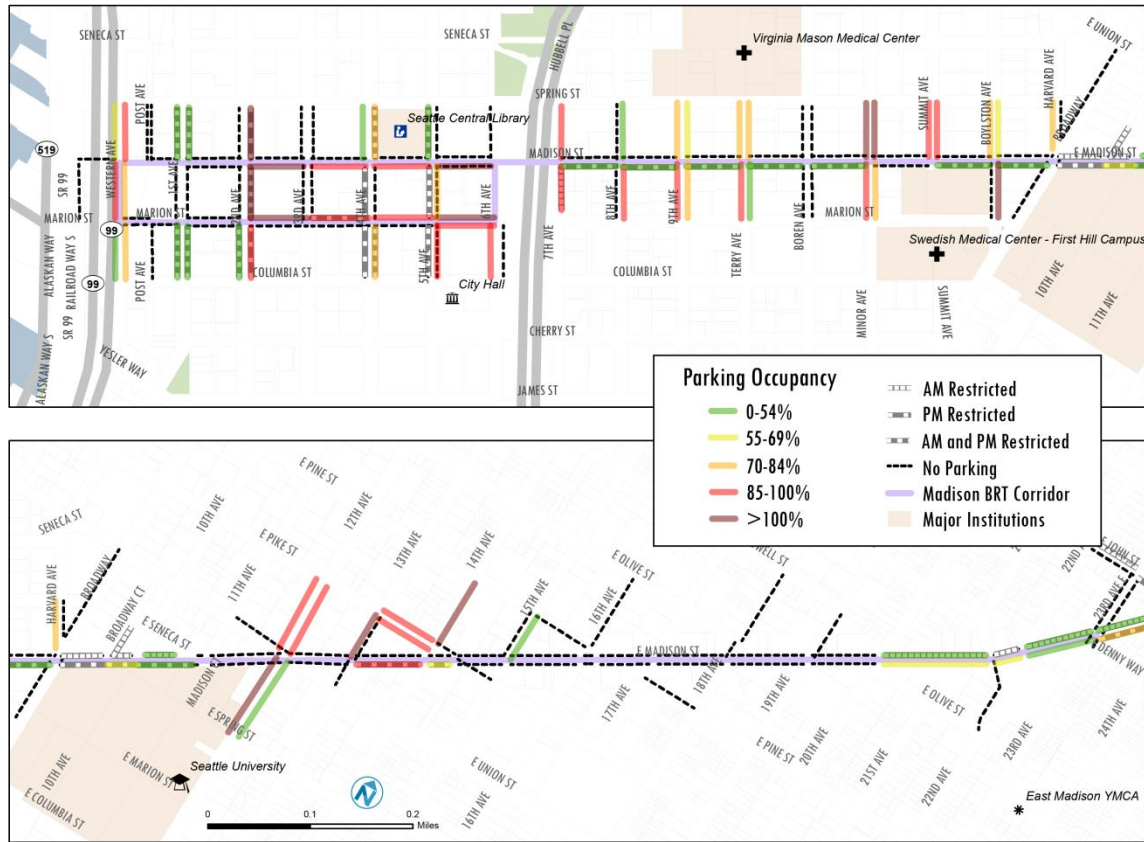
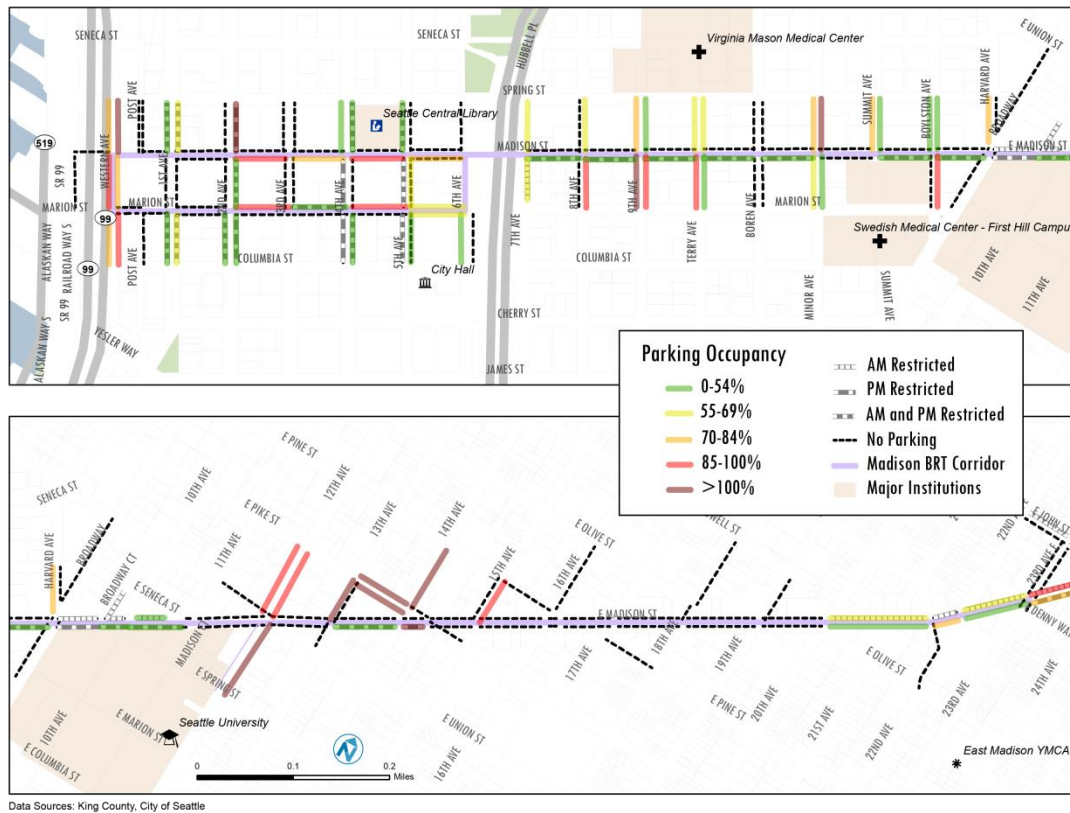


Figure 2-3 Evening Parking Occupancy (4-7 PM)



Data were also collected on commercial and passenger loading spaces in the western portion of the corridor; shown in 2-4 below. In general, availability of these spaces was found to be high.

Figure 2-4 Loading Zone Occupancy

Block	Side	Passenger Loading Zones	Commercial Loading Zones	Average Occupancy
Marion between 2 nd and 3 rd Avenues	NW	2	1	47%
Marion between 3 rd and 4 th Avenues	NW	2	1	29%
Madison between 9 th and Terry	SE	2		13%
6 th Avenue between Marion and Madison	SW	10	1	51%

3 SAFETY

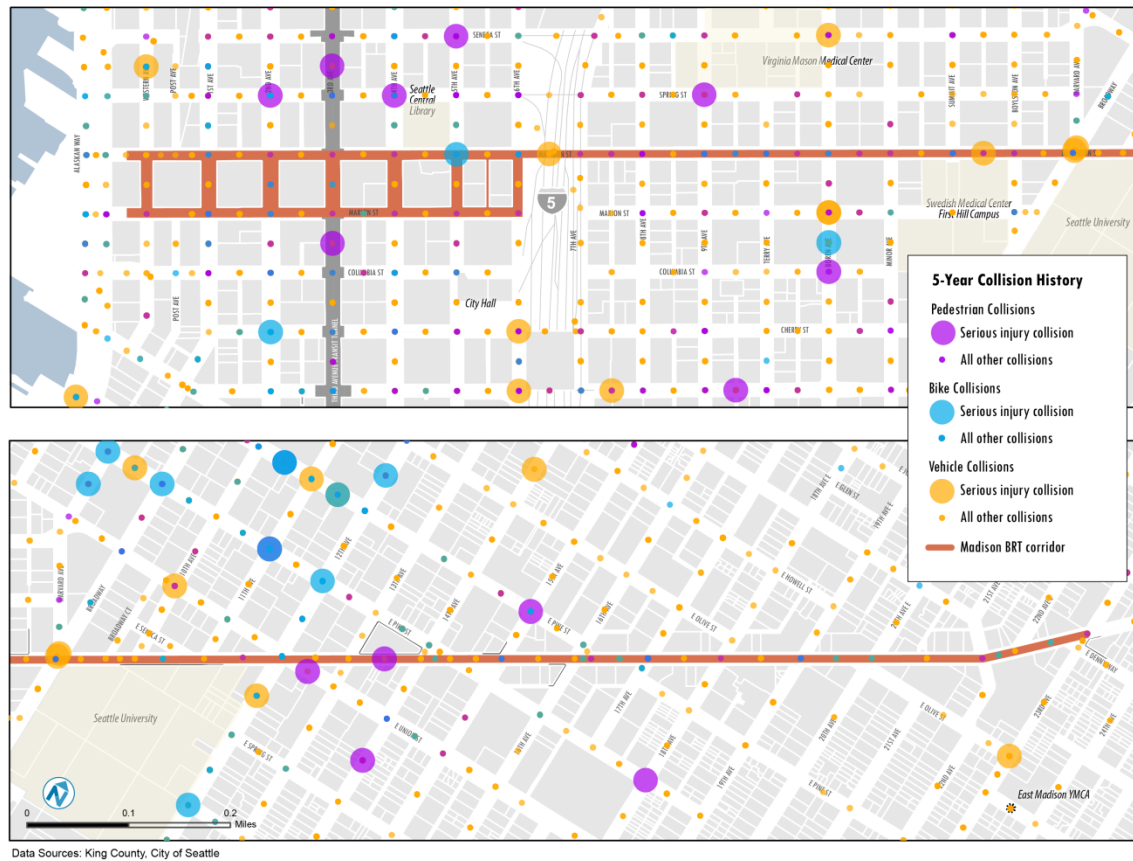
Collisions

Numerous stakeholders in the Madison corridor have identified safety as a concern both in general and with respect to riding transit. Safety issues in the corridor include the safety of those traveling on foot, by bike, or by car, as well as safety on-board buses.

Figure 3-1 shows collisions in the Madison corridor by mode for the past five years, using data provided by SDOT. Overall, there have been relatively few serious collisions on Madison Street (see next paragraph), and no fatal collisions in the past five years. There were a total of 37 bicycle collisions, 64 pedestrian collisions, and 780 vehicle collisions within 100 feet of the corridor over the past five years. However, it is likely that not all bicycle and pedestrian incidents are included in available collision data.

One serious injury collision was reported on Madison within the last five years, at its intersection with Fifth Avenue. Fifth Avenue has sharrows that begin at Madison Street. There were also several pedestrian collisions resulting in serious injuries, including one on Union Street between 12th and 13th Avenues and one on East Madison Street between 13th and 14th Avenues. One bicycle collision resulting in property damage was reported at the intersection of Madison and 12th Avenue, which was mentioned frequently in stakeholder outreach as a dangerous location.

Figure 3-1 Collision Locations by Mode



King County Metro Incident Reports

King County Metro collects records on safety incidents reported on board transit vehicles. Reports for 2012 and 2013 were reviewed for the portions of Route 2 between Third Avenue & Spring/Seneca streets, Route 12 between First and 23rd Avenues, and Route 11 on Madison. The primary types of incidents reported were unruly behavior, fare evasion, verbal abuse, and sleeping/intoxicated passengers.

Figure shows locations with more than one incident in the past two years. Incidents on vehicles traveling north-south on Third Avenue were not included in this summary, as these incidents were numerous but may not be specific to the route. Intersections near Third Avenue still had the highest number of incidents. Other locations with multiple incident reports included 23rd Avenue, Summit, and Broadway.

Figure 3-2 On-Board Passenger Incidents in Madison Corridor

Routes	Cross Street	Total Incidents
2, 12	4 th /5 th avenues	12
2, 12	2 nd /3 rd avenues	8
2, 11	23 rd Avenue	7
2, 12	Summit	7
2, 12	Broadway	6
2, 12	8 th /9 th avenues	5
2, 12	Boren	5
12	1 st Avenue	4
2, 12	6 th /7 th	3
2, 11, 12	16 th /17 th	3