Appendix D

Vibration Propagation Test Sites

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Appendix D

Vibration Propagation Test Sites

V-1: The Firs Mobile Home Park

The Firs Mobile Home Park abuts SR 99 and the impacts at this site were performed along the eastside sidewalk of SR 99. The measurement location is shown in Exhibit D-1. There were two lines of accelerometers running away from the road. The first line consisted of six accelerometers placed at 25, 38, 50, 63, 75, and 100 feet from the impact line. The second line consisted of two accelerometers that were offset by 15 feet from the 25-foot and 50-foot positions.

EXHIBIT D-1
Schematic of Test Site V-1, The First Mobile Home Park

V-2: 32nd Avenue S and S 212th St

This test was performed at the intersection of 32nd Avenue S and S 212th Street. The impact line was on the edge of 32nd Avenue S, while the line of accelerometers were placed on S 212th Street. Accelerometers were placed at 25, 38, 50, 75, 100, 125, 150, and 200 feet from the impact line as shown in Exhibit D-2. This area is a quiet residential neighborhood with very little vehicular traffic.

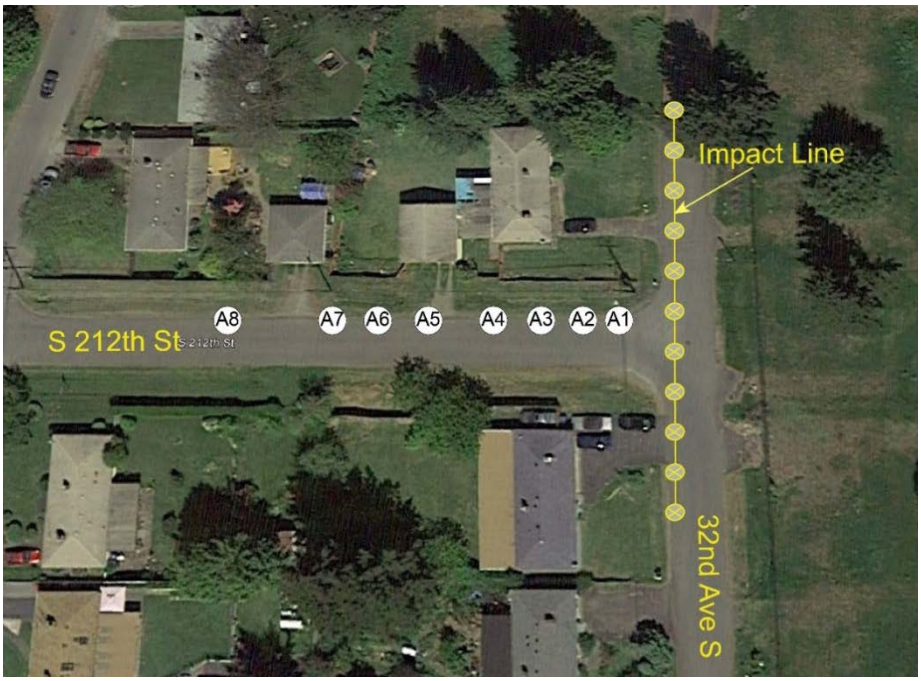

EXHIBIT D-2
Schematic of Test Site V-2, 32nd Avenue S and S 212th Street Intersection

V-3: 30th Avenue S and S 225th Place

This test site is located at the corner of 30th Avenue S and S 225th Place. The impact locations were along the edge of 30th Avenue S and the accelerometers were placed in a line down the edge of S 225th Place as shown in Exhibit D-3. Accelerometers were placed at 25, 38, 50, 75, 100, 125, 160, and 200 feet from the impact line. This area is in a residential neighborhood with moderate traffic on 30th Avenue S and minimal traffic on S 225th Place.

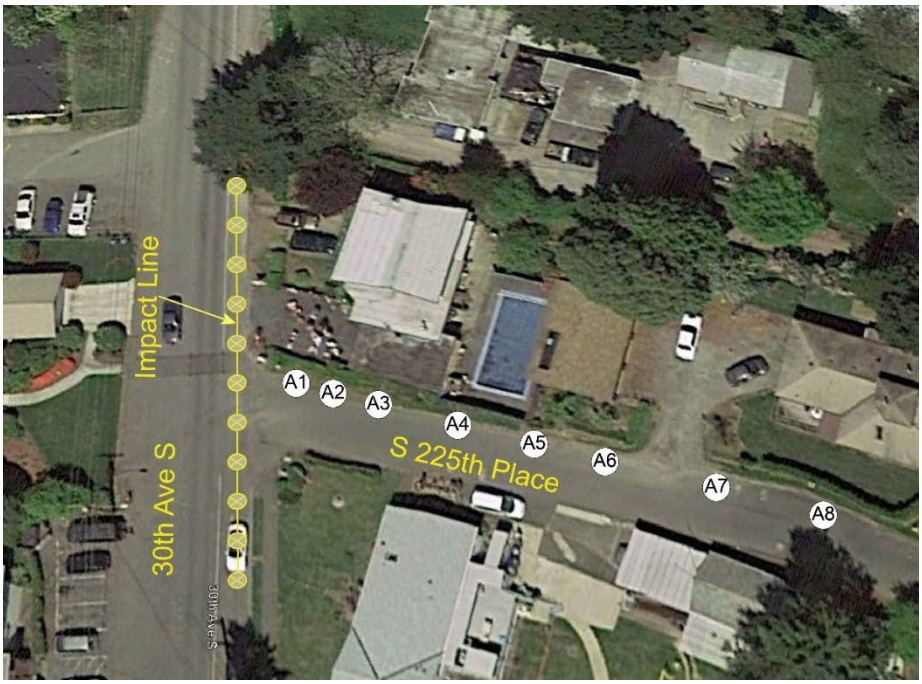

EXHIBIT D-3
Schematic of Test Site V-3, 30th Avenue S and S 225th Place Intersection

V-4: 3012 S 240th Street

This test was performed in the driveway of the apartment building at 3012 S 240th Street. The test site is located to the north of Lowes hardware store. The impact locations were along the edge of 30th Avenue S. The accelerometers were placed in two perpendicular lines. The primary line contained six accelerometers placed perpendicular to the impact line and 30th Avenue S at distances of 25, 38, 50, 63, 75, and 100 feet. The second line contained two accelerometers that were placed at the façade of the apartment building perpendicular to the primary line at distances of 30 and 40 feet from the 25-foot location of the primary line, as shown in Exhibit D-4. The apartment building is at the edge of a residential area and there is moderate traffic on 30th Avenue S and fairly high traffic on S 240th Street.

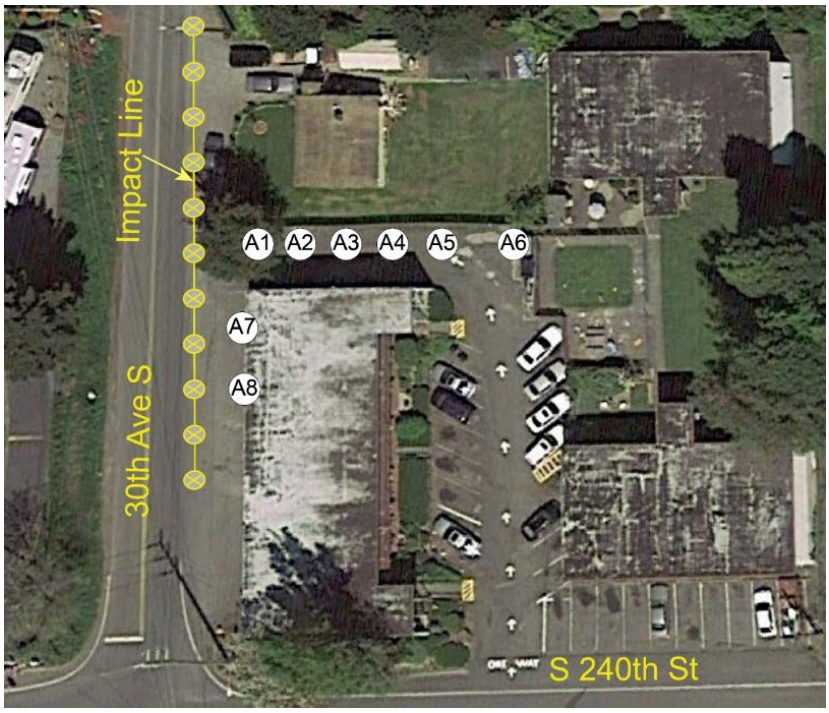

EXHIBIT D-4
Schematic of Test Site V-4, 3012 S 240th Street

V-5, 31st Avenue S and S 254th Street

This test was performed at the corner of 31st Avenue S and S 254th Street. The impact locations were on 31st Avenue in a line perpendicular to S 254th Street. The accelerometers were placed in a single line along S 254th Street, as shown in Exhibit D-5. Accelerometers were placed at 25, 50, 75, 100, 125, 150, 175, and 200 feet from the impact line. This area is a residential neighborhood with low vehicular traffic.

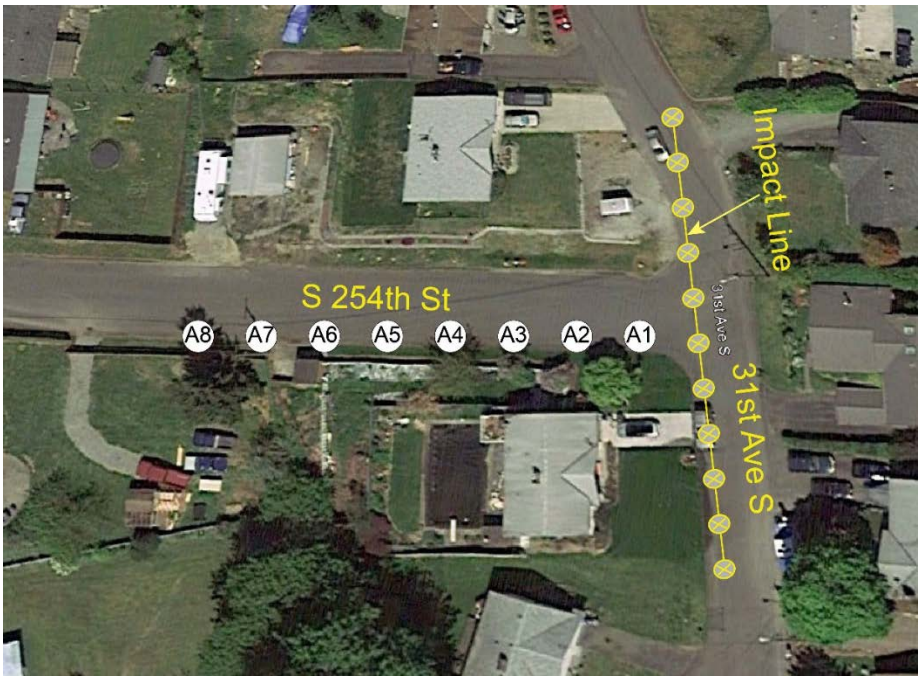

EXHIBIT D-5
Schematic of Test Site V-5, 31st Avenue S and S 254th Street Intersection

V-6, Mark Twain School

This test was performed at the parking lot of Mark Twain School located west of I-5. The impact locations were along the southeast edge of the parking lot. Six accelerometers were placed in a line perpendicular to the impact line as shown in Exhibit D-6. Accelerometers were placed at 25, 50, 75, 100, 125, and 150 feet from the impact line. This school is at the end of a long driveway.

EXHIBIT D-6
Schematic of Test Site V-6, Mark Twain School

V-7, Park-and-Ride Facility

This measurement was performed at the park-and-ride lot next to SR 99. The impact line was parallel to SR 99 and located on the eastside sidewalk, as shown in Exhibit D-7. The accelerometers were placed at 25, 50, 75, 100, 125, and 140 feet from the impact line. This area is a mix of commercial and residential land uses.

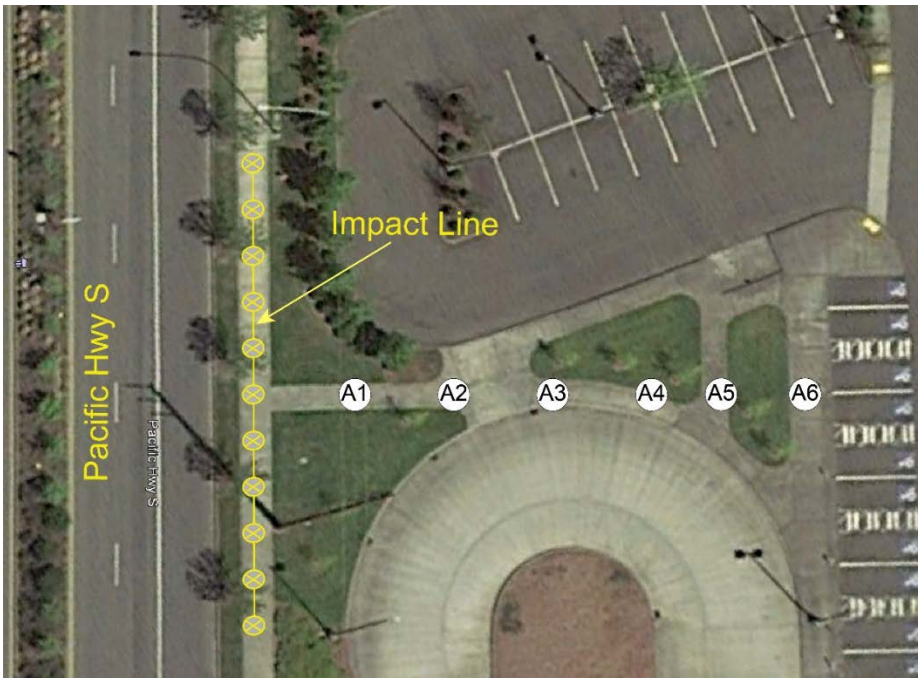

EXHIBIT D-7
Schematic of Test Site V-7, Park-and-Ride Facility on SR 99

V-8, S 283rd Street and SR 99

This test was performed at the intersection of SR 99 and S 283rd Street. The impact line was parallel to SR 99 and the line was partially on the sidewalk, as shown in Exhibit D-8. Six accelerometers were placed on the sidewalk of S 283rd Street at 25, 50, 75, 100, 125, and 140 feet from the impact line. This area is primarily residential.

EXHIBIT D-8
Schematic of Test Site V-8, S 283rd Street and SR 99 Intersection

V-9, Camelot Mobile Homes

The Camelot Mobile Homes Park is located just west of I-5. The impact line at this site was located along Camelot Drive. Six accelerometers were placed in a line down Sir Galahad Court, as shown in Exhibit D-9. The accelerometers were placed at 25, 50, 75, 100, 125, and 150 feet from the impact line. This area is a residential neighborhood close to the I-5 freeway.

EXHIBIT D-9
Schematic of Site V-9, Camelot Mobile Homes

V-10, Lake Apartments

This measurement was performed in the driveway of Lake Apartments. The impact line was located parallel to SR 99 along the sidewalk, as shown in Exhibit D-10. Six accelerometers were placed in a line down the edge of the apartment parking lot. Accelerometers were placed at 25, 50, 75, 100, 125, and 150 feet from the impact line.

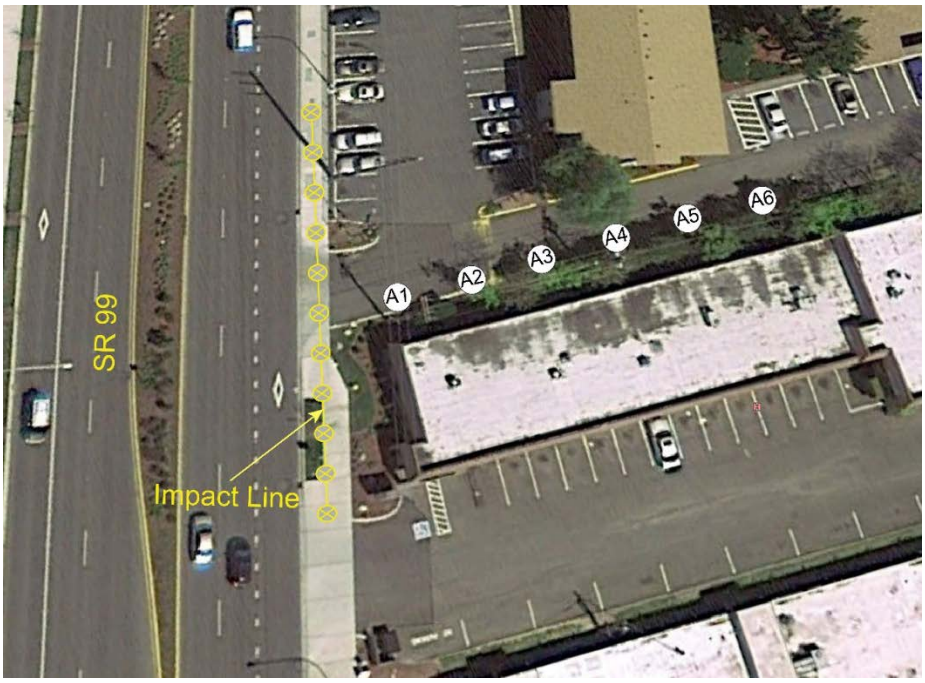

EXHIBIT D-10
Schematic of Test Site V-10, Lake Apartments

V-11, Providence Landing Apartments

This test was performed in the parking lot of Providence Landing Apartments. The impact locations were along the edge of 28th Avenue S, and the accelerometers were placed along the edge of the apartment parking lot. Accelerometers were placed at 25, 38, 50, 63, 75, 100, 125, and 150 feet from the impact line.

EXHIBIT D-11
Schematic of Test Site V-11, Providence Landing Apartments

V-12, Truman High School

This test was performed at the parking lot of Truman High School. Six accelerometers were placed in a line down the parking spaces. The impact locations were in a line perpendicular to the accelerometers. The accelerometers were placed at 25, 38, 50, 63, 75, and 100 feet from the impact line.

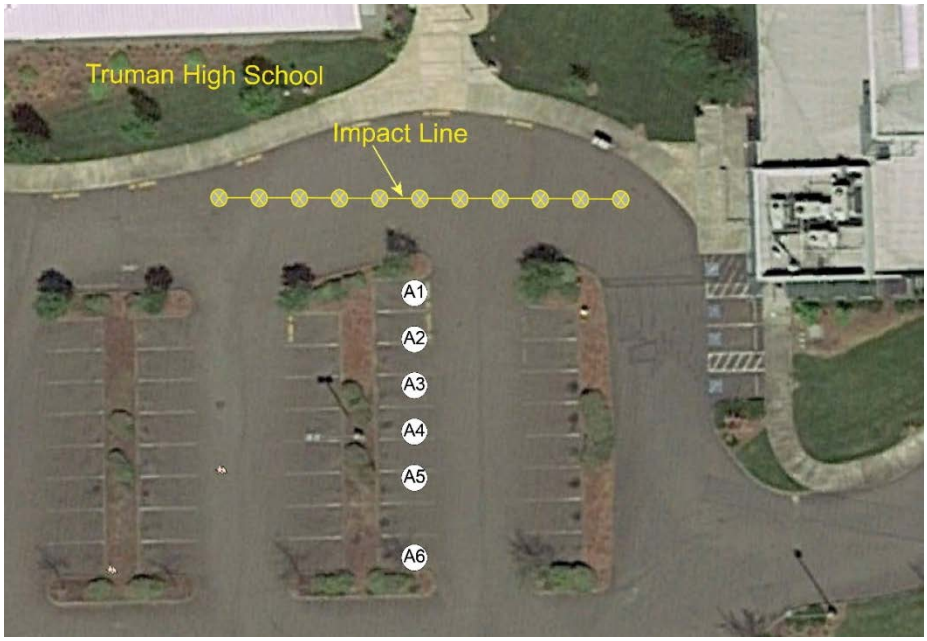

EXHIBIT D-12
Schematic of Test Site V-12, Truman High School

Appendix E

Best Fit Coefficients of Vibration Propagation Data

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Appendix E: Best Fit Coefficients of Vibration Propagation Data

This section presents the best fit coefficients of the vibration propagation test results from the FWLE project corridor. The results of Sites V-1 through V-6 are provided in Table E-1. The results of Sites V-7 through V-12 are provided in Table E-2. The best coefficients A, B and C are presented such that:

$LSTM = A + B(x) + C \log(x)$

Where x is the distance from the impact line.

TABLE E-1
Vibration Propagation Best Fit Coefficients Sites V-1 to V-6

Site	Coefficient	5Hz	6.3Hz	8Hz	10Hz	12.5Hz	16Hz	20Hz	25Hz	31.5Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz
V-1	A	47.9	38.7	32.1	22.0	23.0	35.7	11.6	32.2	-17.5	-8.4	-57.3	-130.5	-151.8	-34.8	-36.1	78.2	100.6
	B	-22.6	-19.4	-16.3	-9.7	-8.3	-13.2	22.7	12.3	82.5	78.7	147.6	244.2	267.0	111.0	117.3	-28.7	-55.9
	C	0.0	0.0	0.0	0.0	0.0	0.0	-11.2	-9.7	-30.4	-30.5	-54.2	-86.7	-94.2	-45.5	-50.0	-5.9	0.0
V-2	A	11.4	16.4	22.3	18.8	27.0	31.7	43.7	59.8	81.0	86.9	110.0	101.5	86.8	74.6	76.6	74.5	76.4
	B	-3.2	-5.4	-6.9	-1.6	-4.6	-5.6	-9.3	-15.5	-26.2	-27.8	-42.4	-40.4	-35.3	-32.7	-37.0	-39.3	-44.9
	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V-3	A	38.0	26.6	31.2	25.1	26.3	26.6	35.5	-25.2	-29.1	-44.3	13.5	-17.5	-21.0	69.5	63.1	74.2	72.8
	B	-16.6	-10.9	-12.7	-8.7	-8.6	-7.9	-10.4	69.5	88.1	110.8	45.4	78.8	80.5	-29.0	-28.3	-37.4	-40.4
	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-22.8	-29.9	-37.2	-19.9	-29.5	-30.4	0.0	0.0	0.0	0.0
V-4	A	15.9	7.7	19.1	12.9	24.9	28.0	29.4	-46.5	-103.5	-57.8	-72.9	-62.5	6.9	71.8	60.6	-119.3	-72.1
	B	-6.8	-2.7	-9.5	-5.7	-11.5	-10.1	-8.5	93.1	176.0	137.0	172.3	153.5	56.0	-29.2	-11.3	198.1	151.6
	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-29.8	-54.7	-46.1	-62.7	-57.3	-26.1	0.0	-8.2	-70.1	-60.7
V-5	A	-0.4	-16.7	3.4	8.1	13.2	20.0	23.7	24.8	21.0	-15.4	-3.0	10.4	35.6	10.7	73.9	75.8	50.5
	B	0.8	16.4	-1.7	-4.0	-6.6	-9.8	-10.0	-6.1	13.0	69.8	65.9	61.9	31.5	52.4	-23.8	-31.5	-4.7
	C	0.0	-4.0	0.0	0.0	0.0	0.0	0.0	0.0	-6.6	-25.7	-27.4	-29.7	-22.0	-27.4	-6.8	-4.8	-12.5
V-6	A	-34.1	3.0	12.1	8.7	18.7	42.0	70.7	72.7	80.5	56.5	90.4	67.5	66.6	72.1	63.9	47.6	50.1
	B	41.2	-2.7	-8.5	-3.6	-4.8	-12.5	-24.8	-23.8	-27.4	3.4	-35.9	-26.3	-27.5	-33.2	-32.6	-27.1	-30.0
	C	-12.2	-0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE E-2
Vibration Propagation Best Fit Coefficients Sites V-7 to V-12

Site	Coefficient	5Hz	6.3Hz	8Hz	10Hz	12.5Hz	16Hz	20Hz	25Hz	31.5Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz
V-7	A	28.8	18.5	15.4	5.0	11.1	31.4	37.4	-104.1	-106.6	-67.5	1.3	40.4	13.1	33.2	87.0	39.8	76.9
	B	-14.5	-10.3	-8.0	10.6	11.6	-8.8	-9.0	171.9	185.1	148.4	71.1	16.1	46.1	26.3	-41.9	9.1	-40.8
	C	0.0	0.0	0.0	-5.7	-6.5	0.0	0.4	-52.8	-58.1	-50.1	-30.8	-14.1	-22.7	-19.6	0.0	-15.0	0.0
V-8	A	44.9	29.4	26.9	23.2	26.2	38.4	47.0	24.0	4.4	-60.7	-25.2	-25.1	35.7	-1.3	-28.5	-24.2	82.3
	B	-23.1	-15.4	-14.1	-10.6	-8.9	-13.2	-16.4	16.3	50.0	141.1	104.7	103.0	25.5	63.8	91.7	84.5	-50.4
	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-9.8	-21.1	-51.1	-43.3	-43.7	-21.4	-32.4	-41.0	-39.7	0.0
V-9	A	28.1	22.3	15.0	20.0	24.7	-9.2	48.6	59.4	-53.1	-31.8	-20.8	-26.7	17.8	75.9	80.5	86.7	48.2
	B	-9.5	-4.5	-1.0	-1.0	-4.4	36.8	-16.5	-13.0	119.7	105.2	94.9	100.7	37.8	-33.2	-46.2	-53.0	-30.6
	C	0.0	0.0	0.0	0.0	0.0	-11.6	0.9	-3.0	-40.7	-40.0	-39.4	-42.8	-23.8	-4.1	0.0	0.0	0.0
V-10	A	15.4	15.6	17.9	19.8	28.3	36.6	48.5	39.4	1.1	-6.7	-24.5	31.6	41.6	37.3	-27.6	-57.1	-59.7
	B	-6.7	-8.2	-10.9	-12.1	-15.6	-17.9	-20.9	2.7	64.6	83.5	104.6	39.9	19.0	17.5	85.7	108.9	107.3
	C	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-6.9	-26.0	-33.6	-40.0	-22.7	-15.1	-15.5	-34.4	-40.1	-39.6
V-11	A	43.2	45.3	39.7	33.6	28.8	28.5	3.3	25.3	15.1	-13.4	22.2	-8.5	17.6	73.8	71.7	63.8	46.1
	B	-19.3	-22.0	-19.2	-16.3	-14.2	-14.2	20.7	5.2	29.2	75.7	39.4	80.7	47.1	-21.8	-31.4	-29.6	-3.2
	C	0.0	0.0	0.0	0.0	0.0	0.0	-9.8	-5.6	-12.2	-27.7	-18.2	-32.1	-22.9	-4.3	0.0	0.0	-9.8
V-12	A	12.3	10.2	15.5	10.6	12.0	21.9	-55.6	-5.4	39.1	49.2	-6.3	44.8	-47.7	-163.4	-19.6	-146.1	-55.9
	B	-8.4	-8.3	-10.8	-7.6	-8.8	-14.4	95.0	39.0	-13.7	-14.1	72.9	8.7	109.1	247.9	70.7	219.1	109.0
	C	0.0	0.0	0.0	0.0	0.0	0.0	-35.8	-18.2	0.0	0.0	-30.6	-12.3	-39.6	-81.2	-28.2	-73.2	-41.6

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