



DAVID EVANS
AND ASSOCIATES INC.

TRANSMITTAL

DATE: August 13, 2019

PROJECT: Sammamish Concurrency Management

TO: Steven Chen, P.E.
Traffic Engineering Manager
City of Sammamish
801 – 228th Avenue SE
Sammamish, WA 98075-9509

PROJECT NO.: COSA0000-0018

FROM: Josh Anderson, P.E., PTOE

PHONE NO.: (425) 586-9773

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ITEM	COPIES	DATE	DESCRIPTION
A	1	8/13/2019	Concurrency Test #12 Memo Report FINAL

☒ AS YOU REQUESTED ☐ FOR YOUR APPROVAL ☐ RETURN REQUESTED
☐ FOR YOUR INFORMATION ☐ FOR YOUR REVIEW ☐ RECORDS MANAGEMENT
☒ FOR YOUR USE

COMMENTS:

Steven,

Enclosed is the memo report for Concurrency Test #12. The new 2020-2025 TIP was incorporated into test #10. Concurrency Test #12 passed, as there are no intersection failures, and no Segment or Corridor v/c failures.

Please let me know if you have any questions.

Thank you,
Josh Anderson



DAVID EVANS
AND ASSOCIATES INC.

Technical Memorandum

DATE: August 12, 2019 *Updated August 13, 2019*

TO: Steven Chen, P.E.
Traffic Engineering Manager
City of Sammamish
801 – 228th Avenue SE
Sammamish, WA 98075-9509

FROM: Josh Anderson, P.E., PTOE
Senior Traffic Engineer

SUBJECT: Concurrency Report, Test #12

PROJECT: Sammamish Concurrency Management

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Attached is the concurrency analysis and other information for development application for TCR: 2019-00270. The adopted 2020-2025 TIP has been included since Test #10. The application results in the removal of 3 single family homes, and the construction of 56 multi-family unit and 10 single-family units. In aggregate, and after internal reductions, the test results in the ITE trip generation of 23 AM peak hour and 13 PM peak hour trips within the Sammamish city limits.

Information for Concurrency Review of Current Development Applications

- Concurrency Test Report (1 page) – summary of results.
- Concurrency Intersection Analysis (1 page).
- Concurrency Segment and Corridor Analysis (2 pages).

Additional Information for Concurrency Management

- Cumulative Development Totals (1 page) – running total of concurrency cases.
- AM Peak Land Use and Trip Generation Summary for Concurrency Test #12 (3 pages).
- PM Peak Land Use and Trip Generation Summary for Concurrency Test #12 (3 pages).

Additional Information Requested by STCA Developers

- AM Peak Trip Distribution for Test #12 (4 pages).
- PM Peak Trip Distribution for Test #12 (4 pages).

Concurrency Test Report for

New Application: TCR2019-00270

Sammamish Concurrency Application Traffic Model File: Concurrency Test #12

Development Case

This Concurrency Test #12 includes one new development application since the previous Concurrency Test #11

In aggregate, this test includes the following developments within the Sammamish city limits:

- removal of 3 single family homes,
- addition of 56 new multi-family homes, and
- addition of 10 new single-family homes.

The ITE Trip Generation, increases by 23 **AM peak hour trips** and 13 **PM peak hour trips** for the tested development.

Changes Updated in Models and Concurrency System:

The following changes were added to the Citywide Pipeline Travel Demand Forecasting Model, SYNCHRO model, and/or the concurrency system:

- Inclusion of the 2020-2025 TIP project list (as of test #10),
- Update of the Pipeline analysis year to 2025 (as of test #10), and
- Update of the land use and trip generation in the system (as of Test #12).

Concurrency Evaluation: PASS

Model Basis: The above concurrency test developments were added into the 2025 Citywide VISUM Pipeline Travel Demand Forecasting Model (pared with the 2016 base model) that incorporated Concurrency Test #11.

Link Standard: The City of Sammamish has developed their own methodology for calculating v/c, the methodology is being called “HCM modified”. No roadway segment may exceed an HCM modified v/c of 1.40 in either the AM or PM analysis hours. No roadway corridor may exceed an HCM modified v/c or 1.10 in either the AM or PM analysis hours.

Intersection Standard: No intersection Level of Service (LOS) may fall below C (or D on Principal Arterials, or E where Principal Arterials intersect). Stop-controlled and signal-controlled intersections were evaluated using the SYNCHRO program, and roundabouts were evaluated using the aaSIDRA program with the *Highway Capacity Manual* (HCM) 2010 methodology except where unsignalized intersections have two stage left turns (these intersections were analyzed using HCM 2000 methodologies). There are no failures at Sammamish intersections for this current test.

Land Use = Concurrency Test #12
Forecast Year = 2025
Road System = 2025

CP No.	Intersection	LOS Standard	Traffic Control	AM School Peak Hour (7:00 to 8:00)		PM System Peak Hour (4:45 to 5:45)	
				Delay	LOS	Delay	LOS
1	Issaquah-Pine Lk Rd & SE 48th St	D	Signal	27.3	C	14.0	B
2	228th Ave NE & NE 12th Pl	D	Signal	16.5	B	8.5	A
3	Klahanie Dr SE & SE Issaquah Fall City Rd	D	RAB	10.1	B	8.6	A
4	244th Ave SE & SE 24th St	C	2-Way Stop	23.2	C	15.6	C
5	SE 32nd St & 244th Ave SE	C	4-Way Stop	17.4	C	19.8	C
6	Issaquah-Pine Lk Rd & SE 32nd Way	D	RAB	6.7	A	7.7	A
7	228th Ave SE & SE 40th St *	D	2-Way Stop	20.7	C	24.2	C
8	SE Klahanie Blvd & 256th Ave SE	C	4-Way Stop	18.7	C	15.7	C
9	247th Pl SE & SE Issaquah Fall City Rd (Pacific Cascade Middle School)	D	RAB	7.3	A	5.9	A
10	Sahalee Way NE & NE 36th St	D	Signal	13.9	B	11.2	B
11	242nd Ave NE & NE 8th St	C	Signal	24.2	C	11.7	B
12	228th Ave SE & SE 8th St	D	Signal	13.7	B	18.4	B
13	228th Ave NE & NE 19th Dr	D	Signal	10.5	B	6.6	A
14	216th Ave NE & NE Inglewood Hill Rd	C	RAB	6.5	A	8.8	A
15	228th Ave NE & NE Inglewood Hill Rd/NE 8th St	D	Signal	30.8	C	24.7	C
16	228th Ave NE & NE 4th St	E	Signal	35.3	D	23.3	C
17	228th Ave SE & SE 4th St	E	Signal	21.8	C	22.9	C
18	212th Ave SE & SE 8th St	C	2-Way Stop	13.8	B	15.8	C
19	228th Ave SE & SE 16th St	D	Signal	11.3	B	8.7	A
20	E Lk Sammamish Pkwy & 212th Way SE	C	Signal	5.5	A	4.3	A
21	E Lk Sammamish Pkwy & SE 24th Way *	C	2-Way Stop	12.1	B	14.9	B
22	212th Ave SE & SE 20th St	C	4-Way Stop	10.8	B	12.9	B
23	E Lk Sammamish Pkwy & Louis Thompson Rd	C	Signal	9.8	A	10.3	B
24	E Lk Sammamish Pkwy & Inglewood Hill Rd	C	Signal	26.6	C	31.6	C
25	Sahalee Way NE & NE 37th Way	D	Signal	21.7	C	11.6	B
26	NE 8th St & 244th Ave NE	C	RAB	5.0	A	4.8	A
27	228th Ave SE & SE 20th St	D	Signal	11.3	B	14.6	B
28	228th Ave SE & SE 24th St	E	Signal	18.3	B	35.1	D
29	228th Ave SE & Issaquah-Pine Lk Rd	E	Signal	30.9	C	40.8	D
30	Issaquah-Pine Lk Rd & SE Klahanie Blvd	D	Signal	27.1	C	26.2	C
31	Duthie Hill Rd & Issaquah Beaver Lake Rd	D	Signal	42.6	D	14.5	B
32	256th Ave SE/E Beaver Lake Dr SE & Issaquah Beaver Lake Rd	C	RAB	7.0	A	5.6	A
33	228th Ave NE & NE 14th St	D	Signal	7.6	A	7.9	A
34	228th Ave NE & NE 25th Way	D	Signal	23.5	C	11.8	B
35	Issaquah-Pine Lk Rd & SE 42nd St	D	Signal	19.3	B	8.9	A
36	Issaquah-Pine Lk Rd & 230th Lane SE/231st Lane SE	D	Signal	16.0	B	12.7	B
37	NE 28th Pl/223rd Ave NE & Sahalee Way NE	D	Signal	13.2	B	5.8	A
38	Issaquah-Pine Lk Rd & SE 47th Way/238th Way SE	D	Signal	12.7	B	15.3	B
39	233rd Ave NE & NE 8th St	C	RAB	6.6	A	3.8	A
40	228th Ave SE & E Main St	D	Signal	4.4	A	4.8	A
41	244th Ave NE & E Main Dr	C	RAB	5.4	A	4.9	A
42	Duthie Hill Rd & Trossachs Blvd SE	D	Signal	33.0	C	24.8	C
43	228th Ave SE & SE 10th St (Skyline)	D	Signal	7.3	A	6.0	A

NOTE: * Intersection configurations require the use of HCM2000 methodologies to adequately present the operations of the two-stage left-turns from the minor approach.

Concurrency Test #12									
2025 HCM Modified Methodology									
	Segment*		AM Volume	PM Volume	Capacities	AM V/C	PM V/C	AM	PM
					2025 HCM Mod	2025 HCM Mod	2025 HCM Mod	Corridor ≤1.1 Segment ≤1.4	
	East Lake Sammamish Parkway North Corridor	NB				1.53	0.82	Fail	Pass
		SB				0.55	1.63	Pass	Fail
1	E Lk Sammamish Pkwy, City limits - 196th Ave NE (Weber Pl) ¹	NB	1,151	612	705	1.63	0.87	Fail	Pass
		SB	449	1,295		0.64	1.84	Pass	Fail
2	E Lk Sammamish Pkwy, 196th Ave NE - NE 26th Pl	NB	1,205	643	705	1.71	0.91	Fail	Pass
		SB	389	1,224		0.55	1.74	Pass	Fail
3	E Lk Sammamish Pkwy, NE 26th Pl - NE Inglewood Hill Rd	NB	1,207	656	969	1.25	0.68	Pass	Pass
		SB	438	1,267		0.45	1.31	Pass	Pass
	East Lake Sammamish Parkway Central Corridor	NB				0.62	0.68	Pass	Pass
		SB				0.51	0.78	Pass	Pass
4	E Lk Sammamish Pkwy, Inglewood Hill Rd – Louis Thompson Rd	NB	669	544	943	0.71	0.58	Pass	Pass
		SB	387	763		0.41	0.81	Pass	Pass
5	E Lk Sammamish Pkwy, Louis Thompson Rd NE – SE 8th St	NB	407	480	705	0.58	0.68	Pass	Pass
		SB	366	558		0.52	0.79	Pass	Pass
6	E Lk Sammamish Pkwy, SE 8th St – SE 24th Way	NB	367	546	705	0.52	0.77	Pass	Pass
		SB	411	502		0.58	0.71	Pass	Pass
	East Lake Sammamish Parkway South Corridor	NB				0.51	1.01	Pass	Pass
		SB				0.89	0.72	Pass	Pass
7	E Lk Sammamish Pkwy, SE 24th Way – 212th Ave SE	NB	356	572	881	0.40	0.65	Pass	Pass
		SB	497	546		0.56	0.62	Pass	Pass
8	E Lk Sammamish Pkwy, 212th Ave SE – South City Limit	NB	446	919	749	0.60	1.23	Pass	Pass
		SB	814	608		1.09	0.81	Pass	Pass
	Sahalee Way–228th Avenue North Corridor	NB				1.08	0.61	Pass	Pass
		SB				0.52	0.97	Pass	Pass
9	Sahalee Way/228th Ave NE, City Limit – NE 37th Way	NB	1,391	576	1,060	1.31	0.54	Pass	Pass
		SB	495	1,181		0.47	1.11	Pass	Pass
10	Sahalee Way/228th Ave NE, NE 37th Way - NE 36th St ²	NB	1,168	568	1,060	1.10	0.54	Pass	Pass
		SB	507	1,076		0.48	1.02	Pass	Pass
11	Sahalee Way/228th Ave NE, NE 36th St - 223rd Ave NE ²	NB	1,144	558	1,060	1.08	0.53	Pass	Pass
		SB	487	1,039		0.46	0.98	Pass	Pass
12	Sahalee Way/228th Ave NE, 223rd Ave NE – NE 25th Way	NB	1,050	586	1,060	0.99	0.55	Pass	Pass
		SB	482	916		0.46	0.86	Pass	Pass
13	228th Ave, NE 25th Way – NE 12th PI ³	NB	814	840	1,060	0.77	0.79	Pass	Pass
		SB	697	877		0.66	0.83	Pass	Pass
	228th Avenue Central Corridor	NB				0.59	0.72	Pass	Pass
		SB				0.59	0.71	Pass	Pass
14	228th Ave, NE 12th PI – NE 8th St/Inglewood Hill Rd	NB	831	939	987	0.84	0.95	Pass	Pass
		SB	870	934		0.88	0.95	Pass	Pass
15	228th Ave, NE 8th St/Inglewood Hill Rd – Main St	NB	920	1,114	1,896	0.49	0.59	Pass	Pass
		SB	991	1,142		0.52	0.60	Pass	Pass
16	228th Ave, Main St - SE 8th St	NB	1,016	1,178	1,896	0.54	0.62	Pass	Pass
		SB	795	1,252		0.42	0.66	Pass	Pass
17	228th Ave, SE 8th St – SE 10th St	NB	972	1,355	1,896	0.51	0.71	Pass	Pass
		SB	1,055	1,257		0.56	0.66	Pass	Pass
18	228th Ave, Se 10th St – SE 20 th St	NB	1,138	1,420	1,896	0.60	0.75	Pass	Pass
		SB	1,131	1,351		0.60	0.71	Pass	Pass
	228th Avenue South Corridor	NB				0.60	0.88	Pass	Pass
		SB				0.73	0.70	Pass	Pass
19	228th Ave, SE 20th St – Issaquah Pine Lake Rd SE ⁴	NB	1,204	1,514	1,949	0.62	0.78	Pass	Pass
		SB	1,215	1,419		0.62	0.73	Pass	Pass
20	228th Ave, Issaquah Pine Lake Rd SE – SE 43rd Way	NB	532	999	969	0.55	1.03	Pass	Pass
		SB	856	600		0.88	0.62	Pass	Pass
	244th Avenue North Corridor	NB				0.36	0.41	Pass	Pass
		SB				0.44	0.40	Pass	Pass
21	244th Ave NE, NE 30th PI - NE 20th St	NB	322	340	881	0.37	0.39	Pass	Pass
		SB	317	362		0.36	0.41	Pass	Pass
22	244th Ave NE, NE 20th St - NE 8th St	NB	345	401	881	0.39	0.45	Pass	Pass
		SB	485	387		0.55	0.44	Pass	Pass
23	244th Ave NE, NE 8th St – E Main St	NB	363	329	925	0.39	0.36	Pass	Pass
		SB	299	374		0.32	0.40	Pass	Pass
24	244th Ave NE/SE, E Main St - SE 8th St	NB	191	379	881	0.22	0.43	Pass	Pass
		SB	396	301		0.45	0.34	Pass	Pass
	NE Inglewood Hill Road Corridor	EB				0.29	0.84	Pass	Pass
		WB				0.76	0.39	Pass	Pass
25	NE Inglewood Hill Rd, E Lk Sammamish Pkwy – 216th Ave	EB	245	747	705	0.35	1.06	Pass	Pass
		WB	676	325		0.96	0.46	Pass	Pass
26	NE Inglewood Hill Rd, 216th Ave NE – 228th Ave NE	EB	224	552	1,013	0.22	0.54	Pass	Pass
		WB	474	331		0.47	0.33	Pass	Pass

	Segment*		AM Volume	PM Volume	Capacities	AM V/C	PM V/C	AM	PM
					2025 HCM Mod	2025 HCM Mod	2025 HCM Mod	Corridor ≤1.1 Segment ≤1.4	
	NE 8th Street Corridor	EB				0.33	0.53	Pass	Pass
		WB				0.43	0.36	Pass	Pass
27	NE 8 th St, 228 th Ave NE – 235 th Ave NE	EB	381	593	1,013	0.38	0.59	Pass	Pass
		WB	451	375		0.45	0.37	Pass	Pass
28	NE 8 th St, 235 th Ave NE – 244 th Ave NE	EB	243	430	925	0.26	0.46	Pass	Pass
		WB	384	316		0.41	0.34	Pass	Pass
	SE 8th Street Corridor	EB				0.28	0.44	Pass	Pass
		WB				0.65	0.34	Pass	Pass
29	SE 8 th St, 228 th Ave SE – 244 th Ave SE	EB	259	409	925	0.28	0.44	Pass	Pass
		WB	600	310		0.65	0.34	Pass	Pass
	Issaquah-Pine Lake Road Corridor	EB/SB				0.98	0.82	Pass	Pass
		WB/NB				0.54	1.04	Pass	Pass
30	Issaquah-Pine Lk Rd, 228 th Ave SE - SE 32 nd Way ⁵	EB	433	843	943	0.46	0.89	Pass	Pass
		WB	514	635		0.54	0.67	Pass	Pass
31	Issaquah-Pine Lk Rd, SE 32 nd Way - SE Klahanie Blvd	NB	529	789	943	0.56	0.84	Pass	Pass
		SB	682	774		0.72	0.82	Pass	Pass
32	Issaquah-Pine Lk Rd, SE Klahanie Blvd – SE 46 th St	NB	506	1,035	943	0.54	1.10	Pass	Pass
		SB	1,074	763		1.14	0.81	Pass	Pass
33	Issaquah-Pine Lk Rd, SE 46th St - SE 48th St	NB	502	1,236	943	0.53	1.31	Pass	Pass
		SB	1,107	718		1.17	0.76	Pass	Pass
	SE 32nd Way/Street - Issaquah-Beaver Lake Road Corridor	EB				0.34	0.62	Pass	Pass
		WB				0.52	0.44	Pass	Pass
34	SE 32 nd Way, Issaquah-Pine Lk Rd – 235 th Place SE	EB	262	536	749	0.35	0.72	Pass	Pass
		WB	475	359		0.63	0.48	Pass	Pass
35	SE 32 nd Way, 235 th Place SE – 244 th Ave SE	EB	223	450	705	0.32	0.64	Pass	Pass
		WB	330	278		0.47	0.39	Pass	Pass
36	SE 32 nd Way, 244 th Ave SE – E Beaver Lake Dr SE	EB	287	481	705	0.41	0.68	Pass	Pass
		WB	401	368		0.57	0.52	Pass	Pass
37	Issaquah-Beaver Lk Rd, E Beaver Lk Dr – SE Duthie Hill Rd	EB	261	303	881	0.30	0.34	Pass	Pass
		WB	290	298		0.33	0.34	Pass	Pass
	Issaquah-Fall City Road Corridor	NB/EB				0.26	0.84	Pass	Pass
		SB/WB				0.81	0.44	Pass	Pass
38	SE Issaquah-Fall City Rd, Issaquah-Pine Lk Rd – 245 th PI SE ⁵	EB	538	1,498	1,772	0.30	0.85	Pass	Pass
		WB	1,383	781		0.78	0.44	Pass	Pass
39	SE Issaquah-Fall City Rd, 245th Ave SE - Klahanie Dr SE	EB	162	1,417	1,861	0.09	0.76	Pass	Pass
		WB	1,466	729		0.79	0.39	Pass	Pass
40	SE Issaquah-Fall City Rd, Klahanie Dr SE - SE Duthie Hill Rd	EB	248	973	925	0.27	1.05	Pass	Pass
		WB	819	532		0.89	0.57	Pass	Pass
41	SE Duthie Hill Rd, SE Issaquah-Beaver Lk Rd – SE Issaquah-Fall City Rd ⁶	NB	227	588	881	0.26	0.67	Pass	Pass
		SB	701	292		0.80	0.33	Pass	Pass
	Duthie Hill Road Corridor	NB/EB				0.36	1.03	Pass	Pass
		SB/WB				0.97	0.67	Pass	Pass
42	SE Duthie Hill Rd, SE Issaquah-Beaver Lk Rd – 266th Ave SE	NB	290	846	725	0.40	1.17	Pass	Pass
		SB	801	549		1.10	0.76	Pass	Pass
43	SE Duthie Hill Rd, 266th Ave SE – Trossachs Blvd SE ⁶	EB	297	793	906	0.33	0.88	Pass	Pass
		WB	739	525		0.82	0.58	Pass	Pass

Notes

Corridor V/C ratios are volume weighted.

* ELSF corridors are shown for information purposes only as they are excluded from concurrency.

¹ A portion of this segment is 30 MPH.

² PM Peak Hour in Sammamish is 4:45-5:45 PM. 15 minute segment count not available, 5-6PM used.

³ A portion of this segment is 35 MPH.

⁴ 228th/IPLR: No FYA

⁵ This segment transitions from a wider cross-section to two lanes, the narrower section was used.

⁶ Segment is partially outside of Sammamish City Limits.



DAVID EVANS
AND ASSOCIATES INC.

CONCURRENCY SYSTEM MONITORING REPORT CONCURRENCY TEST #12

August 12, 2019

CUMULATIVE DEVELOPMENT TOTALS

City of Sammamish Concurrency Management System with Concurrency Test #12

BASE = 2016 Travel Demand Model Update

Total Land Use and Trips (summary)

Concurrency Case	Dwellings (SF + MF)	Commercial Bldgs (1000sf)	Minor Generators (mixed measures)	Trip Generation (PM Peak Hour)
2016 Base	23,313	3,367	1,069	37,477
Cumulative Growth Totals	393	299	1	487
Concurrency Future Totals	23,705	3,666	1,069	37,964

Total Land Use and Trips (details)

Concurrency Case	Single Family DU's	Multi-Family DU's	General Retail 1000sf	Office 1000sf	Industrial 1000sf	Social Retail 1000sf	School Church 1000sf	Med-Dental 1000sf	Active Land Equiv Trips	Park& Ride spaces	Trips - Total (PM Peak Hour)
2016 Base	19,850	3,463	724	122	21	162	2,338	70	680	319	37,477
Cumulative Growth Totals	(23)	416	56	-	-	26.5	217	1	-	-	487
Concurrency Future Totals	19,826	3,879	780	122	21	189	2,555	70	680	319	37,964

Cumulative Growth of Trips from 2016 Base

Concurrency Test Case	Single Family DU's	Multi-Family DU's	General Retail 1000sf	Office 1000sf	Industrial 1000sf	Social Retail 1000sf	School Church 1000sf	Med-Dental 1000sf	Active Land Equiv Trips	Park& Ride spaces	Trips - Total (PM Peak Hour)	PM Peak Hour Trip - Increase from Base
ConCur#36	1	-	-	-	-	0.5	27.0	0.5	-	-	27	27
ConCur#1	10	-	-	-	-	-	-	-	-	-	9	36
ConCur#2	-	-	-	-	-	-	-	-	1.0	-	1	37
ConCur#3	1	-	-	-	-	-	63.0	-	-	-	90	127
ConCur#4	3	-	-	-	-	-	-	-	-	-	3	130
ConCur#5	3	-	-	-	-	-	-	-	-	-	3	133
ConCur#6	1	-	-	-	-	-	-	-	-	-	1	134
ConCur#7	1	-	-	-	-	-	-	-	-	-	1	135
ConCur#8	(3)	-	-	-	-	-	138.8	-	-	-	97	232
ConCur#9	2	-	-	-	-	-	-	-	-	-	2	234
ConCur#10	(45)	3	-	-	-	-	(12.0)	-	(1.0)	-	(26)	208
ConCur#11	(4)	357	56.0	-	-	26.0	-	-	-	-	265	473
ConCur#12	7	56	-	-	-	-	-	-	-	-	14	487
Cumulative Growth Totals	(23)	416	56.0	-	-	26.5	216.8	0.5	-	-		487

Source: Land Use and Trip Generation workbook for each test case. The land uses before Case Concur#36 were all incorporated in 2016 Base.

Trip generation is for PM Peak Hour, at Traffic Analysis Zones within City of Sammamish

LAND USE and TRIP GENERATION SUMMARY - AM PEAK HOUR

Sammamish Traffic Model

User Case Description:

Forecast Year:	2025
2025 Pipeline	
Concurrency Test #12	

City of Sammamish		Land Use Totals				
		Major Generators		Minor Generators		
AREA NAME	AREA CODE	Total Dwellings	Comm'l 1000 sf	SchlChrch 1000 sf	ActivLand Equiv Trips	Park/Ride spaces
Sammamish NW	1	6,819	433	144	40	0
Sammamish NE	2	3,424	260	904	106	0
Sammamish SW	3	2,977	252	123	251	319
Sammamish SE	4	4,826	267	933	210	0
Klah-FCRd	5	4,876	124	298	239	0
Subtotal		22,922	1,336	2,402	846	319

Trip Generation Totals		
Trip Generation by Location		
At Dwellings	At All Other	Totals
2,831	2,105	4,936
1,899	3,100	4,999
1,390	1,259	2,649
2,428	3,370	5,798
1,934	1,752	3,686
10,482	11,586	22,068

City of Sammamish	Trip Generation by Land Use Type											
	Dwellings		Commercial Generators					Minor Generators			Totals	
Land Use Type	SFDU	MFDU	Retail 1000 sf	Office 1000 sf	Ind'l 1000 sf	SocRetl 1000 sf	MedDntl 1000 sf	Comm'l Subtotal	SchlChrch 1000 sf	ActivLand Equiv Trips		Park/Ride spaces
Quantity	18,886	4,035	900	124	28	194	89	1,335.6	2,402	846	319	22,068
Overall Trip Rate	0.60	0.40	0.36	1.16	0.78	1.52	3.82		2.85	1.00	0.74	
Overall Trips	11,391	1,618	320	145	22	296	338	1121	6,856	846	236	

Description of PM Peak Hour Traffic Generation Model:

Values describe total trip generation by all cars, trucks, and commercial vehicles, computed from land use data for Traffic Analysis Zones.

Trip generation procedure includes adjustments to basic vehicular trip generation, according to zone-specific adjustments for: transit mode split (work and non-work); commute-trip reduction actions, character of retail activity (local versus regional service); retail size; and pass-by reductions.

Pass-by traffic at retail sites is eliminated so that only net off-site traffic is included for distribution in the traffic model.

Trip generation in zones outside the Sammamish Planning Area are scaled down based on distance from Sammamish (near zero at edge of region).

Summaries by area represent the sum for all TAZ's in each area.

Aggregate trip rates, combining all trip purposes, but before zone-specific size/scale adjustments are applied:
(Retail rate formula varies exponentially with size)

Trip purposes represent the following directional movements:

(a) Work-Based Trip Purposes, by direction:

From Home to work = commute trips without stops, discounted for park&ride trips.

Includes 6% work-home trips in reverse direction to dominant commute flow.

From Home to Other = trips from home to other destinations, before continuing to work

From Other to work = trips from the non-home destinations of purpose (2) to work

From home to Park/Ride = From homes to Issaquah Park&Ride and Redmond Park&Ride.

Non-home-based = personal and commercial vehicle trips, to/from locations which are not the driver's home.

(b) Home-Based Trip Purposes, by direction:

Trips between the driver's home and all other non-work destinations, primarily retail.

From Home to Local Other = Shorter trips in the community around the residential zone.

From Local Other to Home = Shorter trips in the community around the residential zone.

From Home to Regional Other = Longer trips outside the local community.

From Regional Other to Home = Longer trips outside the local community.

Land Use:	Units	2Way Rate	% Outbnd
Single Family	dwelling	0.60	74%
Multi Family	dwelling	0.40	79%
Retailover 1,00,000 sf	1000 sf	0.82	40%
Retailexample at 400,000 sf	1000 sf	0.95	40%
Retailexample at 100,000 sf	1000 sf	1.29	40%
Retailexample at 20,000 sf	1000 sf	1.39	40%
Retailunder 8,300 sf	1000 sf	2.70	40%
Office	1000 sf	1.16	13%
Industrial	1000 sf	0.78	39%
Social Retail	1000 sf	1.52	59%
Schools, Churches	1000 sf	2.85	48%
Med-Dental	1000 sf	3.82	26%
Active Land	trip equivalents	1.00	20%
Park&Ride	space	0.74	5%

NOTE1: Trip ends outside Sammamish Planning Area are scaled down from actual totals to various degrees, for Sammamish modeling purposes.

Do not compare to land use, nor to region-wide trip generation data from other sources.

NOTE2: about 6% of the "From Work" total is actually distributed as "To-Work" trips (e.g., 2nd shift workers), but not separately summarized.

LAND USE and TRIP GENERATION SUMMARY - AM PEAK HOUR

Sammamish Traffic Model

User Case Description:

Forecast Year:	2025
2025 Pipeline	
Concurrency Test #12	

Land Use and Trip Generation - Grand Summary

AREA NAME	CODE	Major Generators		Minor Generators			Trip Generation by Location		
		Total Dwellings	Comm'l 1000 sf	SchlChrch 1000 sf	ActivLand Equiv Trips	Park/Ride spaces	At Dwellings	At All Other	Totals
Sammamish NW	1	6,819	433	144	40	0	2,831	2,105	4,936
Sammamish NE	2	3,424	260	904	106	0	1,899	3,100	4,999
Sammamish SW	3	2,977	252	123	251	319	1,390	1,259	2,649
Sammamish SE	4	4,826	267	933	210	0	2,428	3,370	5,798
Klah-FCRd	5	4,876	124	298	239	0	1,934	1,752	3,686
SR202Edge	6	620	197	10	47	0	329	388	717
Issaquah	60	15,560	13,780	1,109	0	1,400	9,542	16,728	26,270
Redmond	70	35,208	39,932	762	823	500	10,404	15,053	25,457
Other areas	80-200	1,618,010	887,929	0	0	0	88,209	108,765	196,974
Totals		1,692,319	943,174	4,282	1,716	2,219	118,966	152,520	271,486
City of Sammamish Subtotal		22,922	1,336	2,402	846	319	10,482	11,586	22,068
Sammamish+Growth Area Subtotal		23,542	1,533	2,411	893	319	10,811	11,974	22,785

Caution: Totals given do not include all trips in the Puget Sound region. Trips beyond Sammamish Planning Area are discounted, approaching zero in adjacent counties.

Trip End Summary by Trip Purpose Groups

AREA NAME	CODE	4 Work-based Trip Purposes			4 Home-Based Trip Purposes			Non-Home-Based Trips			All Trip Purposes Combined		
		Origins	Destin's	Totals	Origins	Destin's	Totals	ORIG6	DEST6	Totals	Origins	Destin's	Totals
Sammamish NW	1	1,210	435	1,645	1,832	1,159	2,991	258	42	300	3,300	1,636	4,936
Sammamish NE	2	709	685	1,394	1,743	1,402	3,145	437	23	460	2,889	2,110	4,999
Sammamish SW	3	546	279	825	880	649	1,529	212	83	295	1,638	1,011	2,649
Sammamish SE	4	957	692	1,649	2,095	1,519	3,614	503	32	535	3,555	2,243	5,798
Klah-FCRd	5	864	281	1,145	1,401	925	2,326	200	15	215	2,465	1,221	3,686
SR202Edge	6	117	116	233	222	195	417	51	16	67	390	327	717
Issaquah	60	2,858	5,353	8,211	6,424	8,174	14,598	1,576	1,885	3,461	10,858	15,412	26,270
Redmond	70	3,941	6,938	10,879	5,244	6,781	12,025	1,052	1,501	2,553	10,237	15,220	25,457
Other areas	80-93	27,459	31,612	59,071	10,493	11,243	21,736	1,413	2,078	3,491	39,365	44,933	84,298
Totals		78,834	78,834	157,668	43,206	43,206	86,412	7,112	7,112	14,224	129,152	129,152	258,304
City of Sammamish Subtotal		4,286	2,372	6,658	7,951	5,654	13,605	1,610	195	1,805	13,847	8,221	22,068
Sammamish+Growth Area Subtotal		4,403	2,488	6,891	8,173	5,849	14,022	1,661	211	1,872	14,237	8,548	22,785

Caution: Totals given do not include all trips in the Puget Sound region. Trips beyond Sammamish Planning Area are discounted, approaching zero in adjacent counties.

LAND USE and TRIP GENERATION SUMMARY - AM PEAK HOUR

Sammamish Traffic Model

User Case Description:

Forecast Year:	2025
2025 Pipeline	
Concurrency Test #12	

Trip End Summary for Work-Related Trip Purposes

		HM-WK	HM-WK	WK-DVT	WK-DVT	DVT-HM	DVT-HM	HM-PKRD	HM-PKRD	Totals	Totals
AREA NAME	CODE	ORIG1	DEST1	ORIG2	DEST2	ORIG3	DEST3	ORIG9	DEST9	Origins	Destin's
Sammamish NW	1	1,164	386	5	30	41	19	0	0	1,210	435
Sammamish NE	2	591	653	10	22	108	10	0	0	709	685
Sammamish SW	3	525	186	0	5	21	5	0	83	546	279
Sammamish SE	4	835	659	10	20	112	13	0	0	957	692
Klah-FCRd	5	821	248	4	10	39	23	0	0	864	281
SR202Edge	6	103	104	3	12	11	0	0	0	117	116
Issaquah	60	2,387	4,654	136	265	332	67	3	367	2,858	5,353
Redmond	70	3,417	6,519	305	184	208	104	11	131	3,941	6,938
Other areas	80-200	62,262	58,696	2,601	2,526	2,202	2,833	567	0	67,632	64,055
	Totals	72,105	72,105	3,074	3,074	3,074	3,074	581	581	78,834	78,834
City of Sammamish Subtotal		3,936	2,132	29	87	321	70	0	83	4,286	2,372
Sammamish+Growth Area Subtotal		4,039	2,236	32	99	332	70	0	83	4,403	2,488

Caution: Totals given do not include all trips in the Puget Sound region. Trips beyond Sammamish Planning Area are discounted, approaching zero in adjacent counties.

Trip End Summary for Home-Based Trip Purposes

		H-LOCL	H-LOCL	LOCL-HM	LOCL-HM	HM-REG'L	HM-REG'L	REG'L-HM	REG'L-HM	Totals	Totals
AREA NAME	CODE	ORIG4	DEST4	ORIG5	DEST5	ORIG7	DEST7	ORIG8	DEST8	Origins	Destin's
Sammamish NW	1	1,525	287	278	844	29	0	0	28	1,832	1,159
Sammamish NE	2	772	955	954	430	17	0	0	17	1,743	1,402
Sammamish SW	3	701	243	170	398	9	0	0	8	880	649
Sammamish SE	4	1,103	883	975	620	17	0	0	16	2,095	1,519
Klah-FCRd	5	1,040	333	330	564	31	0	0	28	1,401	925
SR202Edge	6	143	114	78	80	1	0	0	1	222	195
Issaquah	60	2,845	6,541	3,383	1,439	90	114	106	80	6,424	8,174
Redmond	70	2,372	5,494	2,708	1,134	80	89	84	64	5,244	6,781
Other areas	80-200	16,579	12,230	5,578	8,945	589	660	619	567	23,365	22,402
	Totals	27,080	27,080	14,454	14,454	863	863	809	809	43,206	43,206
City of Sammamish Subtotal		5,141	2,701	2,707	2,856	103	0	0	97	7,951	5,654
Sammamish+Growth Area Subtotal		5,284	2,815	2,785	2,936	104	0	0	98	8,173	5,849

Caution: Totals given do not include all trips in the Puget Sound region. Trips beyond Sammamish Planning Area are discounted, approaching zero in adjacent counties.

LAND USE and TRIP GENERATION SUMMARY - PM PEAK HOUR

Sammamish Traffic Model
User Case Description:

Forecast Year:	2025
2025 Pipeline	
Concurrency Test #12	

City of Sammamish		Land Use Totals				
		Major Generators		Minor Generators		
AREA NAME	AREA CODE	Total Dwellings	Comm'l 1000 sf	SchlChrch 1000 sf	ActivLand Equiv Trips	Park/Ride spaces
Sammamish NW	1	6,402	335	144	40	0
Sammamish NE	2	3,424	260	904	106	0
Sammamish SW	3	2,977	252	123	251	319
Sammamish SE	4	4,826	267	916	210	0
Klah-FCRd	5	4,876	124	381	239	0
Subtotal		22,505	1,237	2,467	846	319

Trip Generation Totals		
Trip Generation by Location		
At Dwellings	At All Other	Totals
4,893	2,923	7,816
2,607	3,025	5,632
2,357	1,770	4,127
3,709	3,176	6,885
3,530	1,830	5,360
17,096	12,724	29,820

City of Sammamish	Trip Generation by Land Use Type											
	Dwellings		Commercial Generators					Minor Generators				
Land Use Type	SFDU	MFUD	Retail 1000 sf	Office 1000 sf	Ind'l 1000 sf	SocRetl 1000 sf	MedDntl 1000 sf	Comm'l Subtotal	SchlChrch 1000 sf	ActivLand Equiv Trips	Park/Ride spaces	Totals
Quantity	18,883	3,622	818	124	28	178	89	1,236.8	2,467	846	319	
Overall Trip Rate	0.92	0.56	7.23	1.47	0.88	5.23	3.41		0.80	1.00	0.75	
Overall Trips	17,362	2,044	5,912	182	25	932	302	7353	1,976	846	239	29,820

Description of PM Peak Hour Traffic Generation Model:

Values describe total trip generation by all cars, trucks, and commercial vehicles, computed from land use data for Traffic Analysis Zones.

Trip generation procedure includes adjustments to basic vehicular trip generation, according to zone-specific adjustments for: transit mode split (work and non-work); commute-trip reduction actions, character of retail activity (local versus regional service); retail size; and pass-by reductions.

Pass-by traffic at retail sites is eliminated so that only net off-site traffic is included for distribution in the traffic model.

Trip generation in zones outside the Sammamish Planning Area are scaled down based on distance from Sammamish (near zero at edge of region).

Summaries by area represent the sum for all TAZ's in each area.

Aggregate trip rates, combining all trip purposes, but before zone-specific size/scale adjustments are applied:
(Retail rate formula varies exponentially with size)

Trip purposes represent the following directional movements:

(a) Work-Based Trip Purposes, by direction:

From Work to Home = commute trips without stops, discounted for park&ride trips.

Includes 6% home-work trips in reverse direction to dominant commute flow.

From Work to Other = trips from worksites to other destinations, before continuing home.

From Other to Home = trips from the non-home destinations of purpose (2) to home

From Park/Ride to Home = From Issaquah Park&Ride and Redmond Park&Ride, to homes.

Non-home-based = personal and commercial vehicle trips, to/from locations which are not the driver's home.

(b) Home-Based Trip Purposes, by direction:

Trips between the driver's home and all other non-work destinations, primarily retail.

From Home to Local Other = Shorter trips in the community around the residential zone.

From Local Other to Home = Shorter trips in the community around the residential zone.

From Home to Regional Other = Longer trips outside the local community.

From Regional Other to Home = Longer trips outside the local community.

Land Use:	Units	2Way Rate	% Outbnd
Single Family	dwelling	0.92	35%
Multi Family	dwelling	0.56	33%
Retailover 1,00,000 sf	1000 sf	3.64	51%
Retailexample at 400,000 sf	1000 sf	4.24	51%
Retailexample at 100,000 sf	1000 sf	5.72	51%
Retailexample at 20,000 sf	1000 sf	6.20	51%
Retailunder 8,300 sf	1000 sf	12.00	51%
Office	1000 sf	1.47	76%
Industrial	1000 sf	0.88	81%
Social Retail	1000 sf	5.23	51%
Schools, Churches	1000 sf	0.80	62%
Med-Dental	1000 sf	3.41	57%
Active Land	trip equivalents	1.00	41%
Park&Ride	space	0.75	87%

NOTE1: Trip ends outside Sammamish Planning Area are scaled down from actual totals to various degrees, for Sammamish modeling purposes.

Do not compare to land use, nor to region-wide trip generation data from other sources.

NOTE2: about 6% of the "From Work" total is actually distributed as "To-Work" trips (e.g., 2nd shift workers), but not separately summarized.

LAND USE and TRIP GENERATION SUMMARY - PM PEAK HOUR

Sammamish Traffic Model

User Case Description:

Forecast Year:	2025
2025 Pipeline	
Concurrency Test #12	

Land Use and Trip Generation - Grand Summary

AREA NAME	CODE	Major Generators		Minor Generators			Trip Generation by Location		
		Total Dwellings	Comm'l 1000 sf	Sch/Chrch 1000 sf	Activ/Land Equiv Trips	Park/Ride spaces	At Dwellings	At All Other	Totals
Sammamish NW	1	6,402	335	144	40	0	4,893	2,923	7,816
Sammamish NE	2	3,424	260	904	106	0	2,607	3,025	5,632
Sammamish SW	3	2,977	252	123	251	319	2,357	1,770	4,127
Sammamish SE	4	4,826	267	916	210	0	3,709	3,176	6,885
Klah-FCRd	5	4,876	124	381	239	0	3,530	1,830	5,360
SR202Edge	6	620	197	10	47	0	478	1,306	1,784
Issaquah	60	15,560	13,780	1,109	0	1,400	9,603	39,631	49,234
Redmond	70	35,208	39,932	762	823	500	10,580	34,702	45,282
Other areas	80-200	1,618,010	887,929	0	0	0	171,737	241,092	412,829
Totals		1,691,902	943,075	4,348	1,716	2,219	209,494	329,455	538,949
City of Sammamish Subtotal		22,505	1,237	2,467	846	319	17,096	12,724	29,820
Sammamish+Growth Area Subtotal		23,125	1,434	2,477	893	319	17,574	14,030	31,604

Caution: Totals given do not include all trips in the Puget Sound region. Trips beyond Sammamish Planning Area are discounted, approaching zero in adjacent counties.

Trip End Summary by Trip Purpose Groups

AREA NAME	CODE	4 Work-based Trip Purposes			4 Home-Based Trip Purposes			Non-Home-Based Trips			All Trip Purposes Combined		
		Origins	Destin's	Totals	Origins	Destin's	Totals	ORIG6	DEST6	Totals	Origins	Destin's	Totals
Sammamish NW	1	309	2,287	2,596	2,311	1,946	4,257	518	445	963	3,138	4,678	7,816
Sammamish NE	2	329	1,279	1,608	1,750	1,481	3,231	422	371	793	2,501	3,131	5,632
Sammamish SW	3	452	1,121	1,573	1,120	955	2,075	255	224	479	1,827	2,300	4,127
Sammamish SE	4	336	1,771	2,107	2,154	1,787	3,941	446	391	837	2,936	3,949	6,885
Klah-FCRd	5	165	1,617	1,782	1,678	1,371	3,049	289	240	529	2,132	3,228	5,360
SR202Edge	6	206	302	508	425	417	842	224	210	434	855	929	1,784
Issaquah	60	12,548	6,493	19,041	9,366	10,216	19,582	5,288	5,323	10,611	27,202	22,032	49,234
Redmond	70	19,687	7,775	27,462	5,592	6,641	12,233	2,681	2,906	5,587	27,960	17,322	45,282
Other areas	80-93	78,029	62,544	140,573	12,484	12,872	25,356	4,410	4,562	8,972	94,923	79,978	174,901
Totals		182,096	182,096	364,192	52,284	52,285	104,569	18,691	18,691	37,382	253,071	253,072	506,143
City of Sammamish Subtotal		1,591	8,075	9,666	9,013	7,540	16,553	1,930	1,671	3,601	12,534	17,286	29,820
Sammamish+Growth Area Subtotal		1,797	8,377	10,174	9,438	7,957	17,395	2,154	1,881	4,035	13,389	18,215	31,604

Caution: Totals given do not include all trips in the Puget Sound region. Trips beyond Sammamish Planning Area are discounted, approaching zero in adjacent counties.

LAND USE and TRIP GENERATION SUMMARY - PM PEAK HOUR

Sammamish Traffic Model

User Case Description:

Forecast Year:	2025
2025 Pipeline	
Concurrency Test #12	

Trip End Summary for Work-Related Trip Purposes

		WK-HM	WK-HM	WK-DVT	WK-DVT	DVT-HM	DVT-HM	PKRD-HM	PKRD-HM	Totals	Totals
AREA NAME	CODE	ORIG1	DEST1	ORIG2	DEST2	ORIG3	DEST3	ORIG9	DEST9	Origins	Destin's
Sammamish NW	1	81	1,583	0	241	228	345	0	118	309	2,287
Sammamish NE	2	135	847	5	189	189	185	0	58	329	1,279
Sammamish SW	3	125	748	11	143	141	172	175	58	452	1,121
Sammamish SE	4	107	1,195	2	224	227	264	0	88	336	1,771
Klah-FCRd	5	50	1,172	0	115	115	247	0	83	165	1,617
SR202Edge	6	86	153	14	106	106	32	0	11	206	302
Issaquah	60	8,261	3,444	1,287	2,241	2,230	580	770	228	12,548	6,493
Redmond	70	15,079	5,249	2,808	1,525	1,525	756	275	245	19,687	7,775
Other areas	80-200	107,178	116,711	20,760	20,103	20,126	22,306	0	331	148,064	159,451
	Totals	131,102	131,102	24,887	24,887	24,887	24,887	1,220	1,220	182,096	182,096
City of Sammamish Subtotal		498	5,545	18	912	900	1,213	175	405	1,591	8,075
Sammamish+Growth Area Subtotal		584	5,698	32	1,018	1,006	1,245	175	416	1,797	8,377

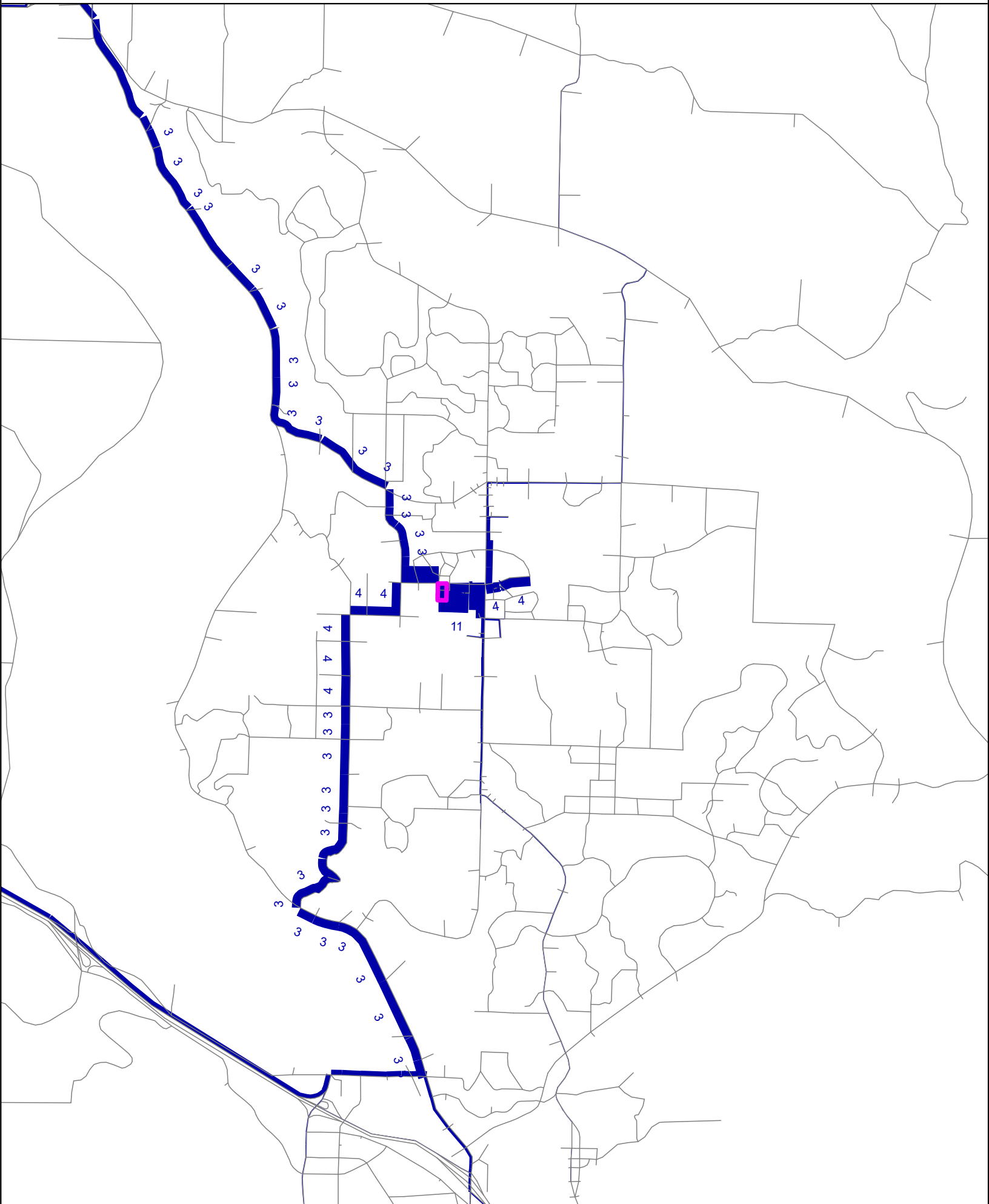
Caution: Totals given do not include all trips in the Puget Sound region. Trips beyond Sammamish Planning Area are discounted, approaching zero in adjacent counties.

Trip End Summary for Home-Based Trip Purposes

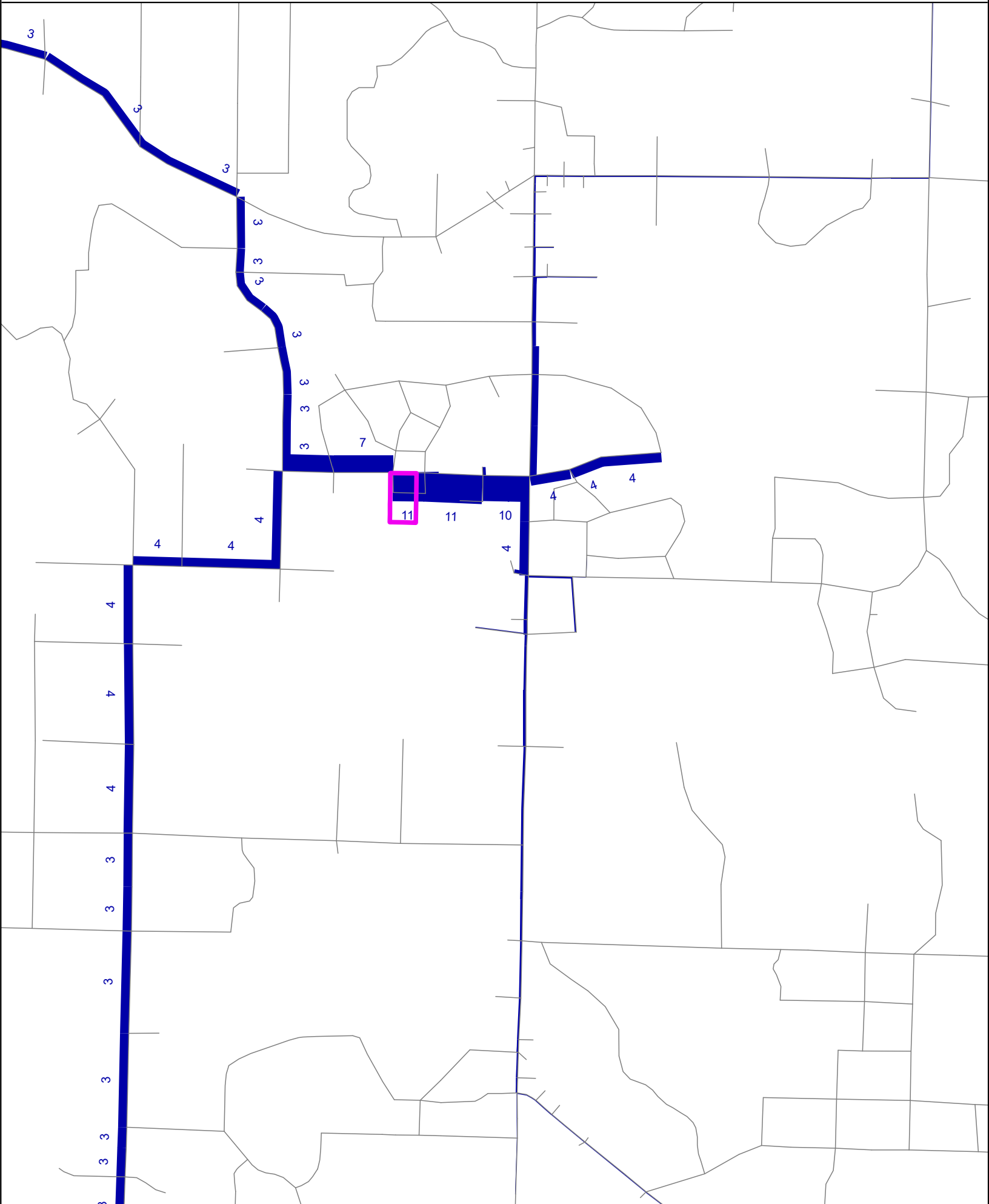
		H-LOCL	H-LOCL	LOCL-HM	LOCL-HM	HM-REG'L	HM-REG'L	REG'L-HM	REG'L-HM	Totals	Totals
AREA NAME	CODE	ORIG4	DEST4	ORIG5	DEST5	ORIG7	DEST7	ORIG8	DEST8	Origins	Destin's
Sammamish NW	1	1,270	568	842	1,193	199	0	0	185	2,311	1,946
Sammamish NE	2	679	747	967	637	104	0	0	97	1,750	1,481
Sammamish SW	3	617	287	409	585	94	0	0	83	1,120	955
Sammamish SE	4	966	738	1,041	912	147	0	0	137	2,154	1,787
Klah-FCRd	5	891	387	634	843	153	0	0	141	1,678	1,371
SR202Edge	6	131	281	279	122	15	0	0	14	425	417
Issaquah	60	2,331	7,064	6,126	2,231	405	537	504	384	9,366	10,216
Redmond	70	1,877	4,102	2,998	1,810	329	415	388	314	5,592	6,641
Other areas	80-200	14,140	8,728	8,410	13,373	2,516	3,010	2,822	2,360	27,888	27,471
	Totals	22,902	22,902	21,706	21,706	3,962	3,962	3,714	3,715	52,284	52,285
City of Sammamish Subtotal		4,423	2,727	3,893	4,170	697	0	0	643	9,013	7,540
Sammamish+Growth Area Subtotal		4,554	3,008	4,172	4,292	712	0	0	657	9,438	7,957

Caution: Totals given do not include all trips in the Puget Sound region. Trips beyond Sammamish Planning Area are discounted, approaching zero in adjacent counties.

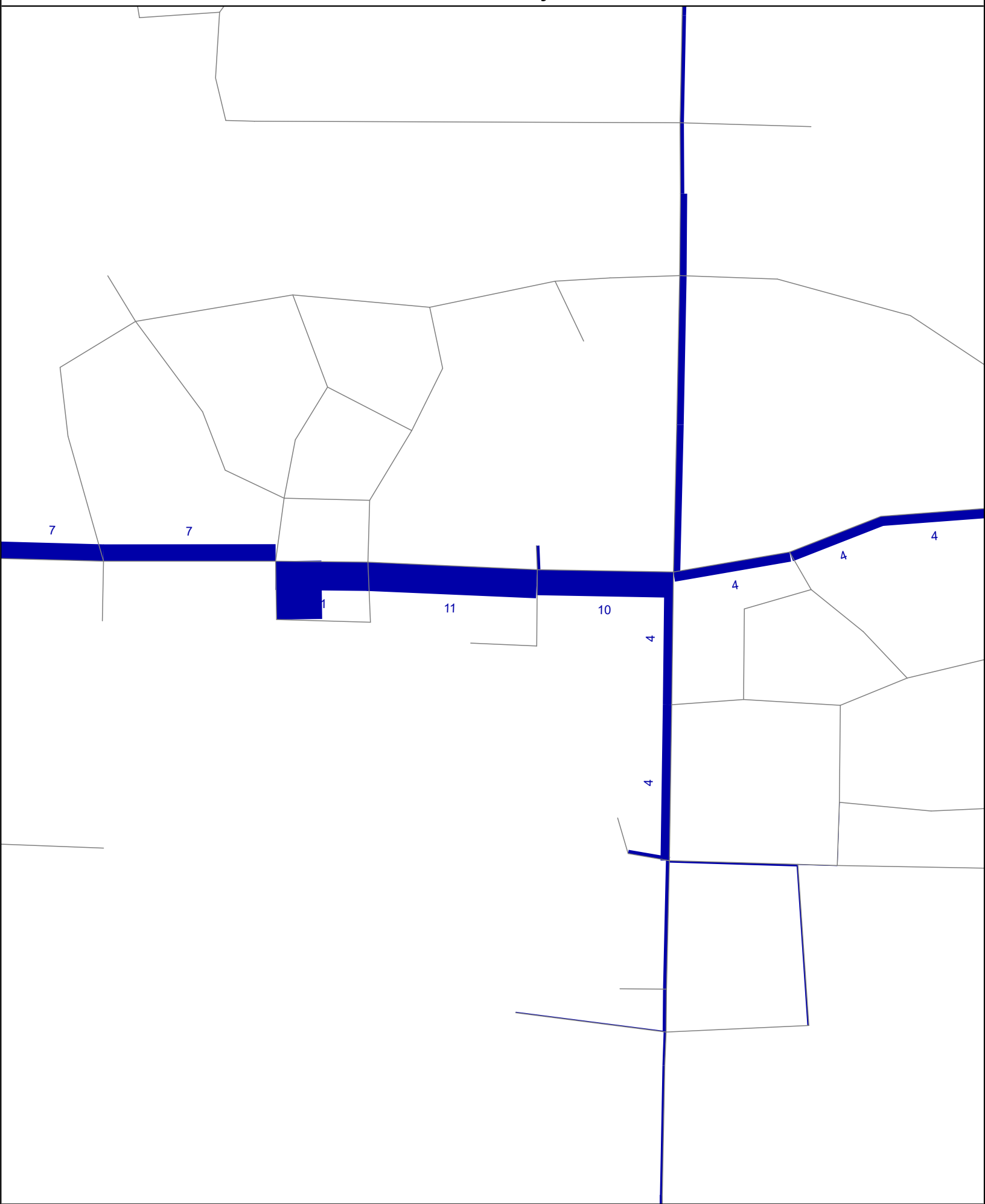
2025 Concurrency Test #12



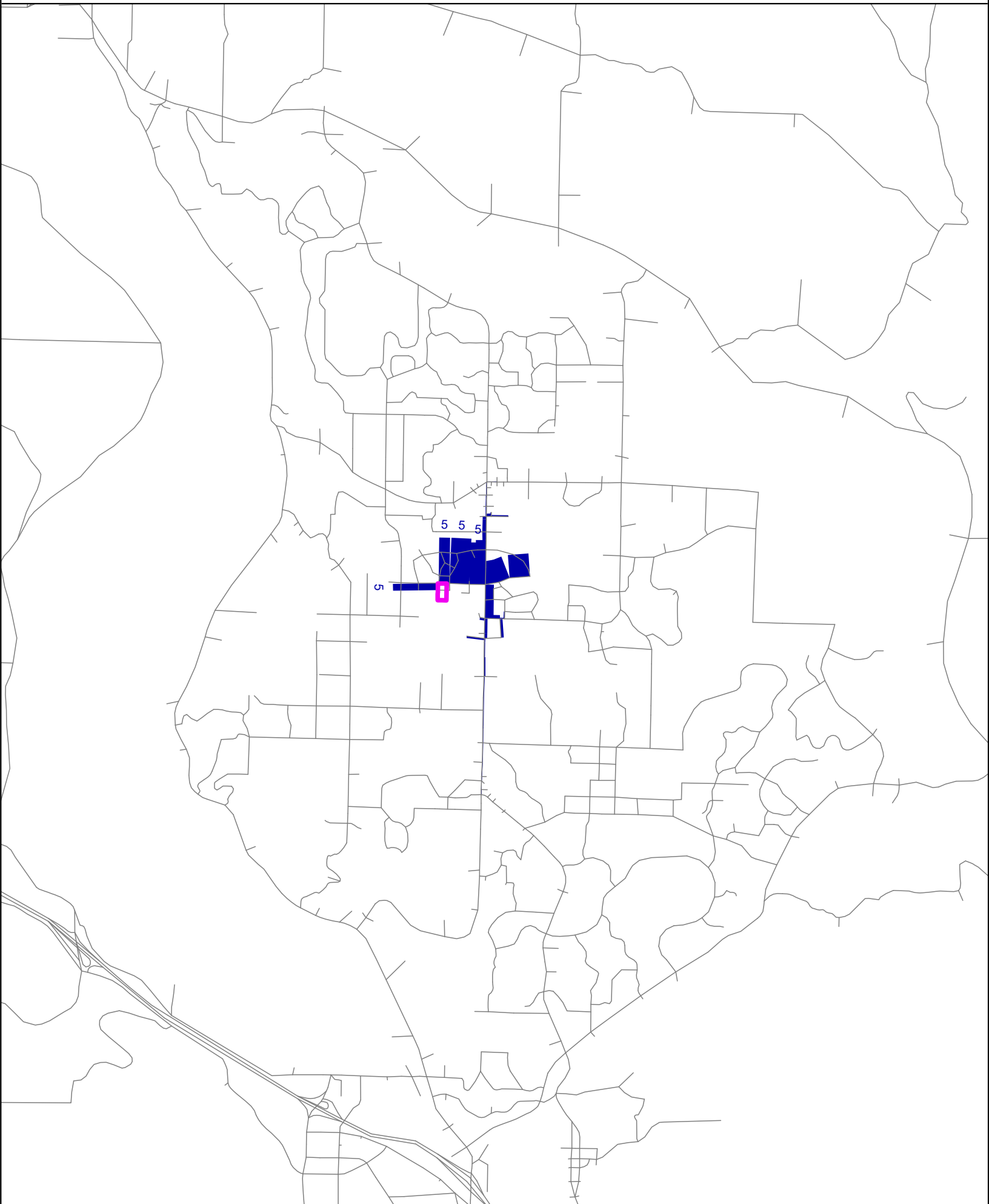
2025 Concurrency Test #12



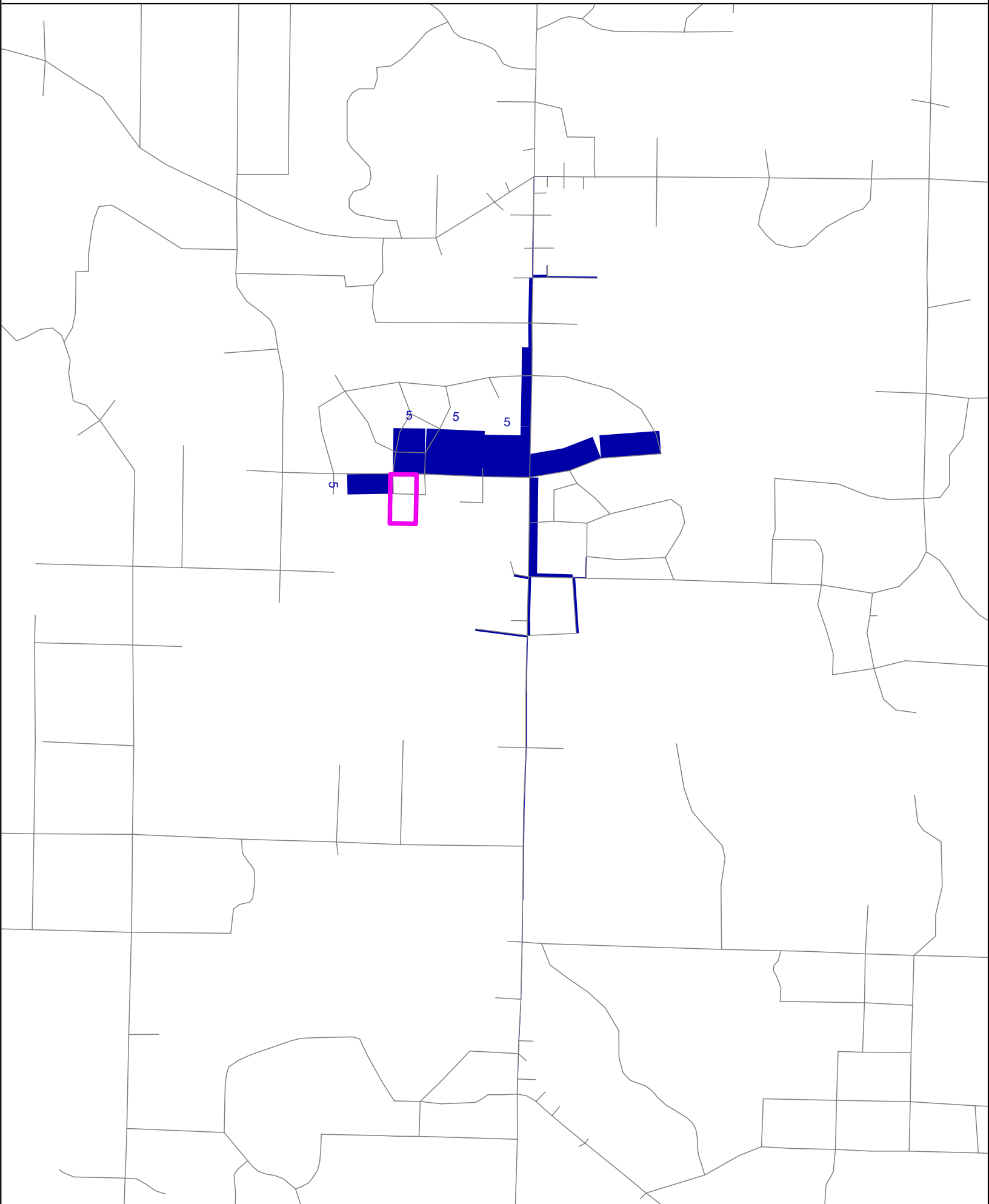
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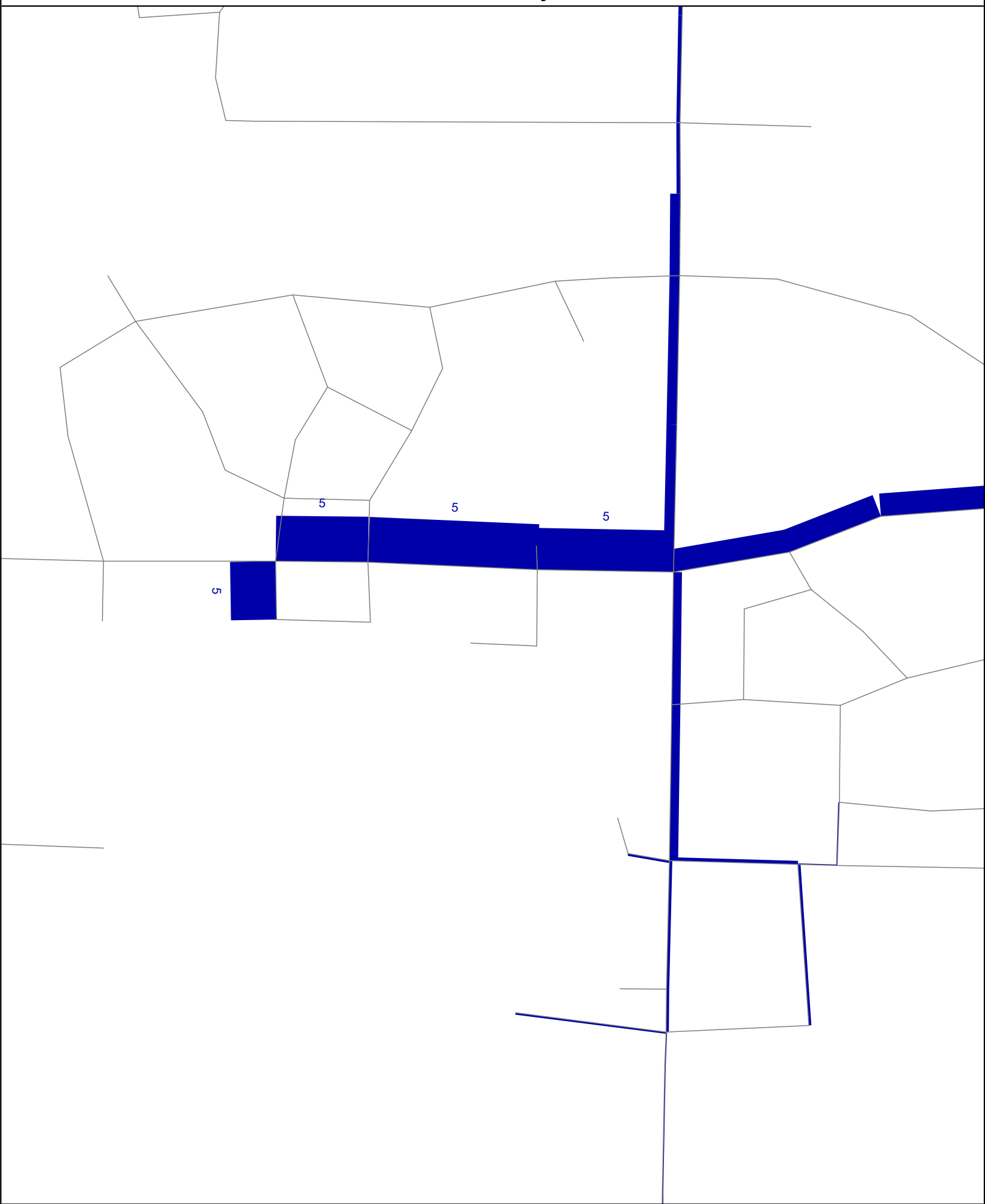
2025 Concurrency Test #12



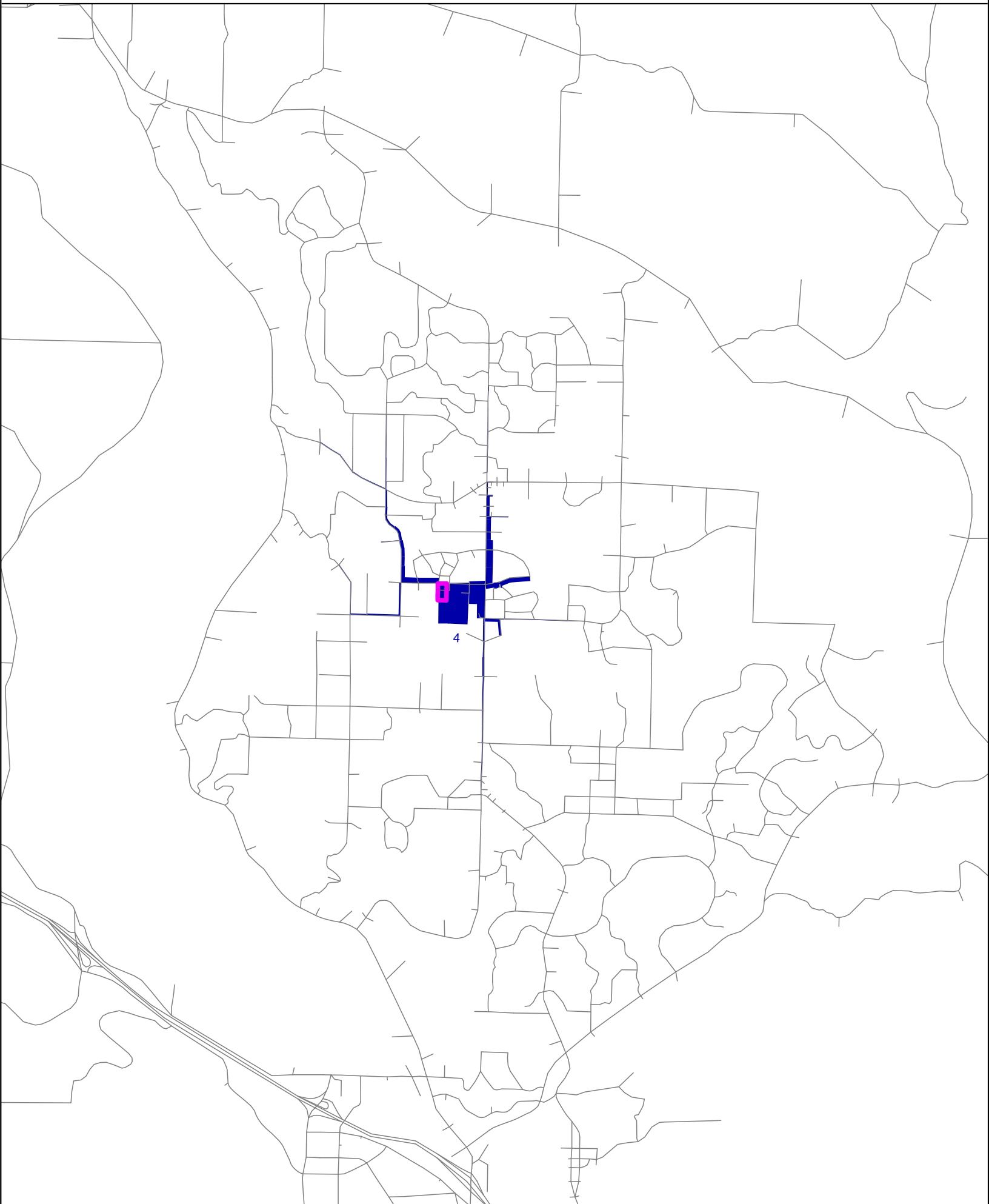
2025 Concurrency Test #12



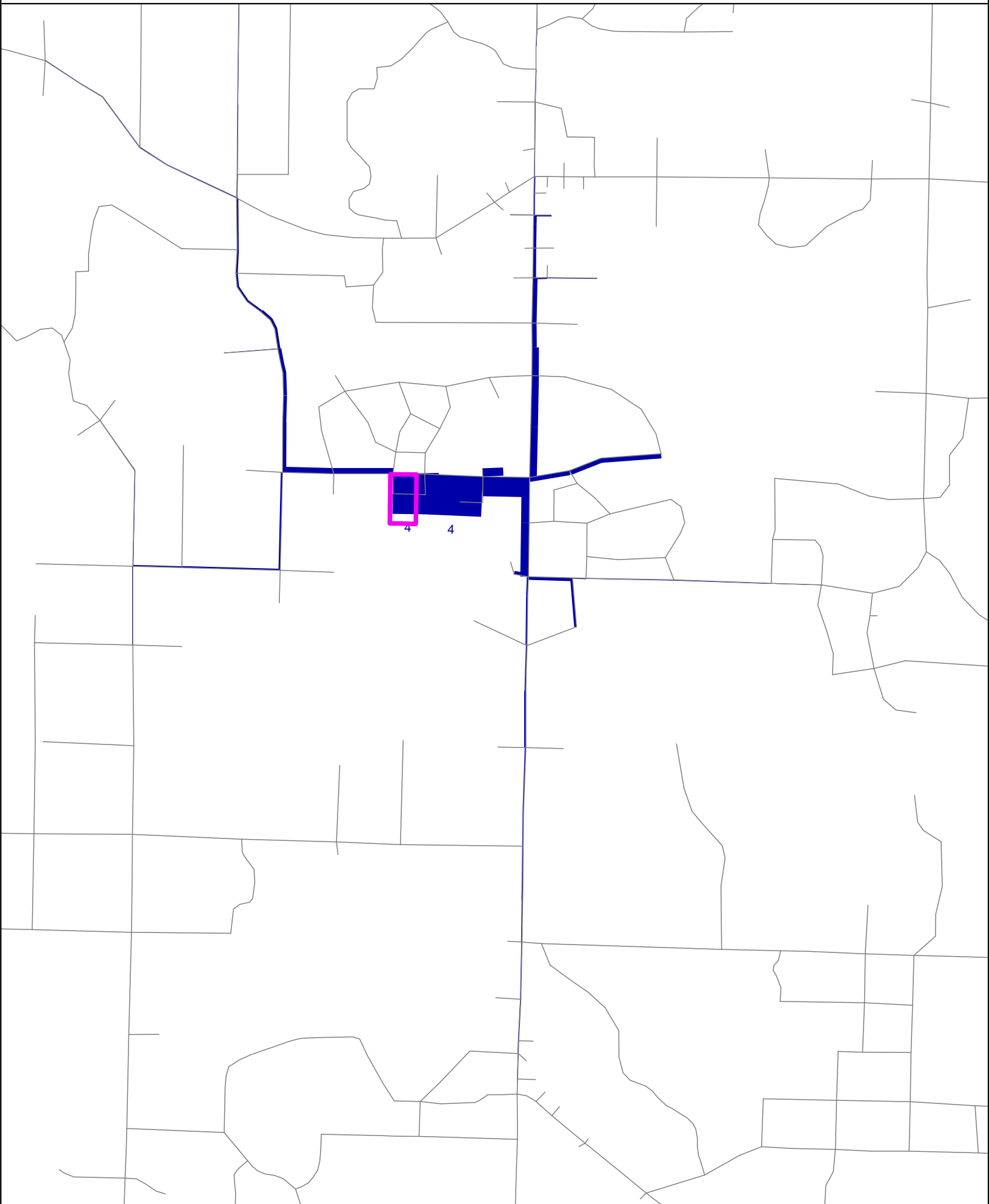
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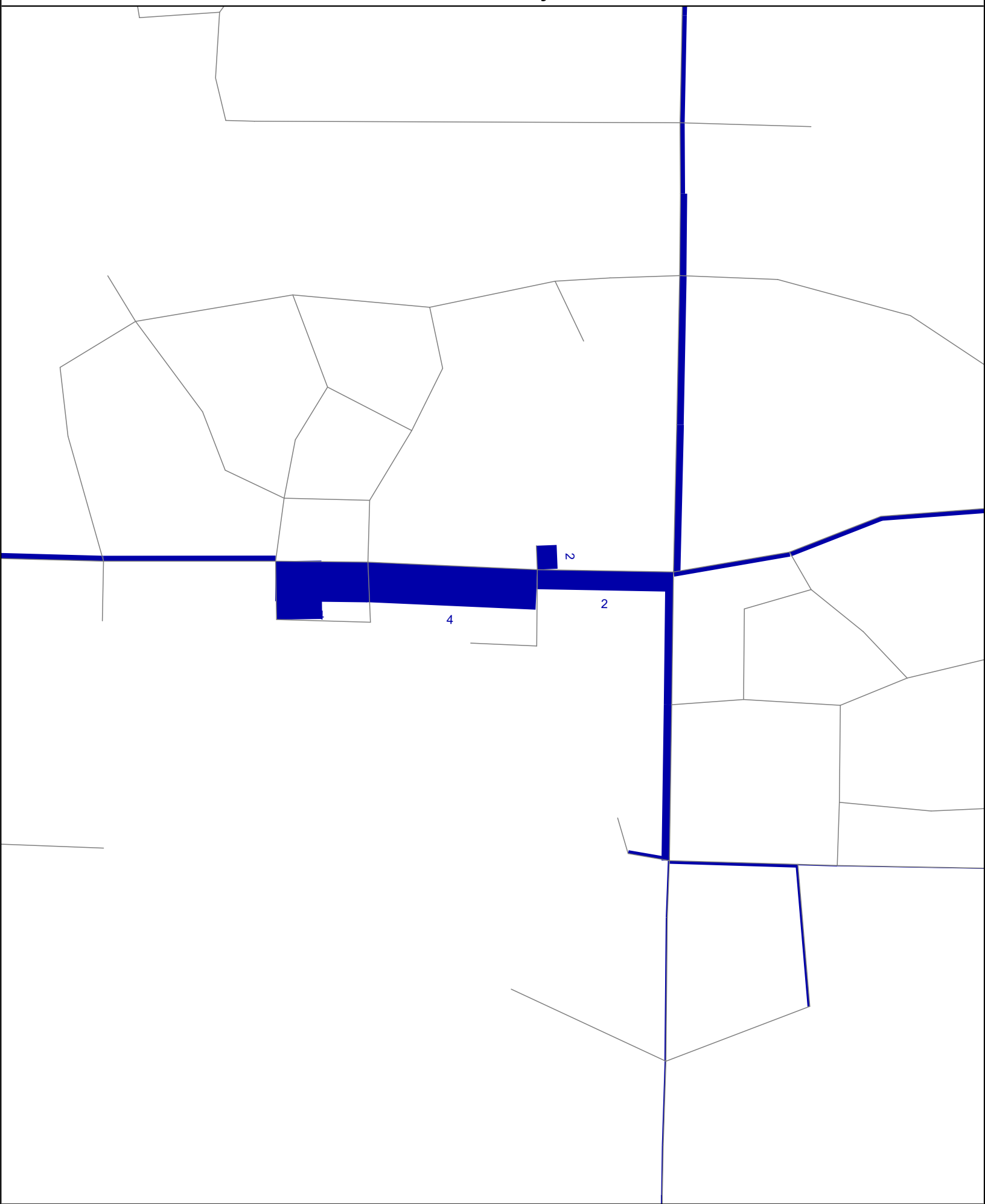
2025 Concurrency Test #12



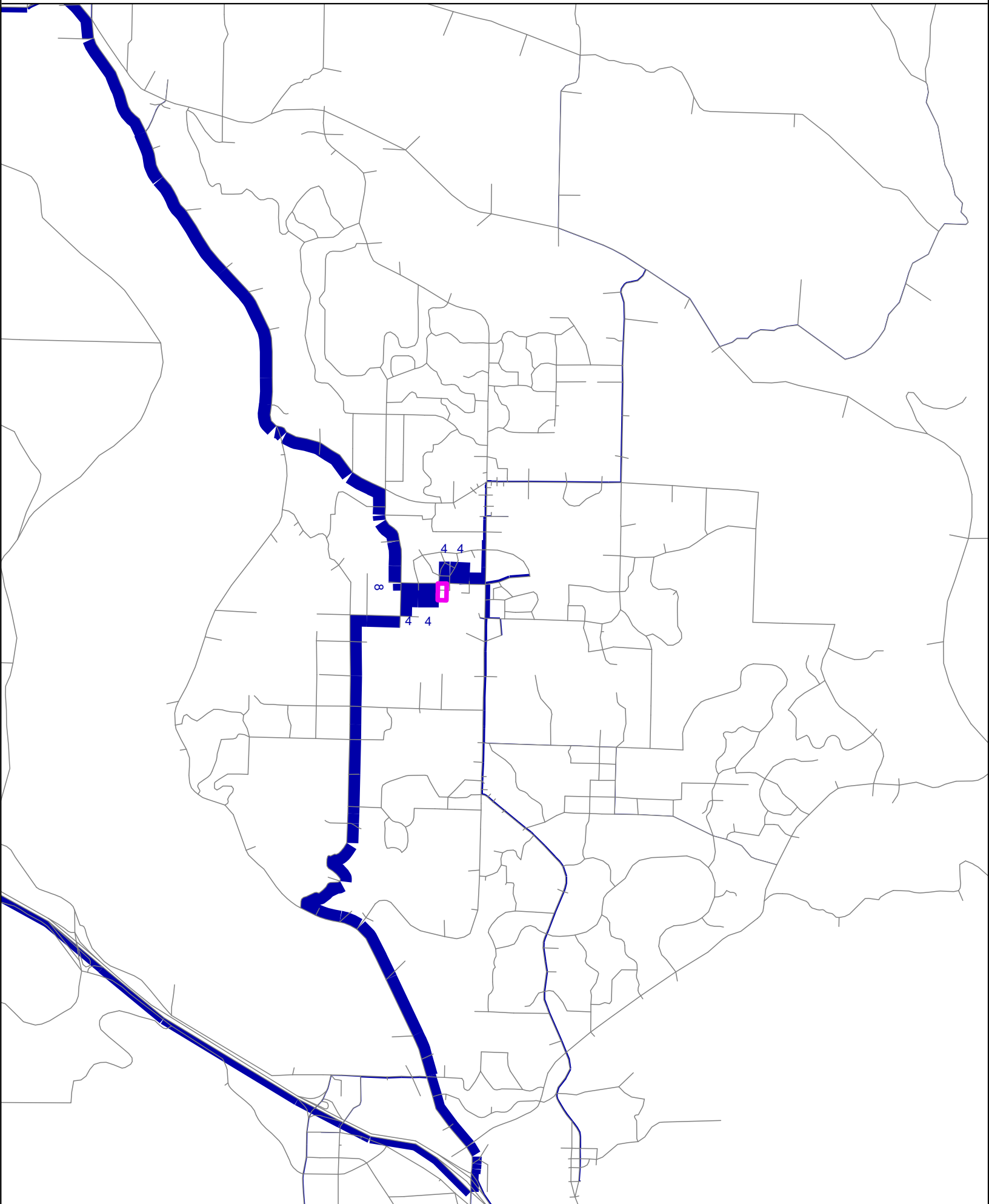
2025 Concurrency Test #12



2025 Concurrency Test #12



2025 Concurrency Test #12



2025 Concurrency Test #12

The map illustrates the 2025 Concurrency Test #12 results. A network of roads is shown, with a specific route highlighted in blue. A pink rectangle highlights a specific intersection. The number '4' is marked at several points along the route, indicating a specific value or count. The map is titled '2025 Concurrency Test #12'.

Created:	David Evans and Associates, Inc.	PM Peak Destined - Zoom
August 9, 2019		

2025 Concurrency Test #12

