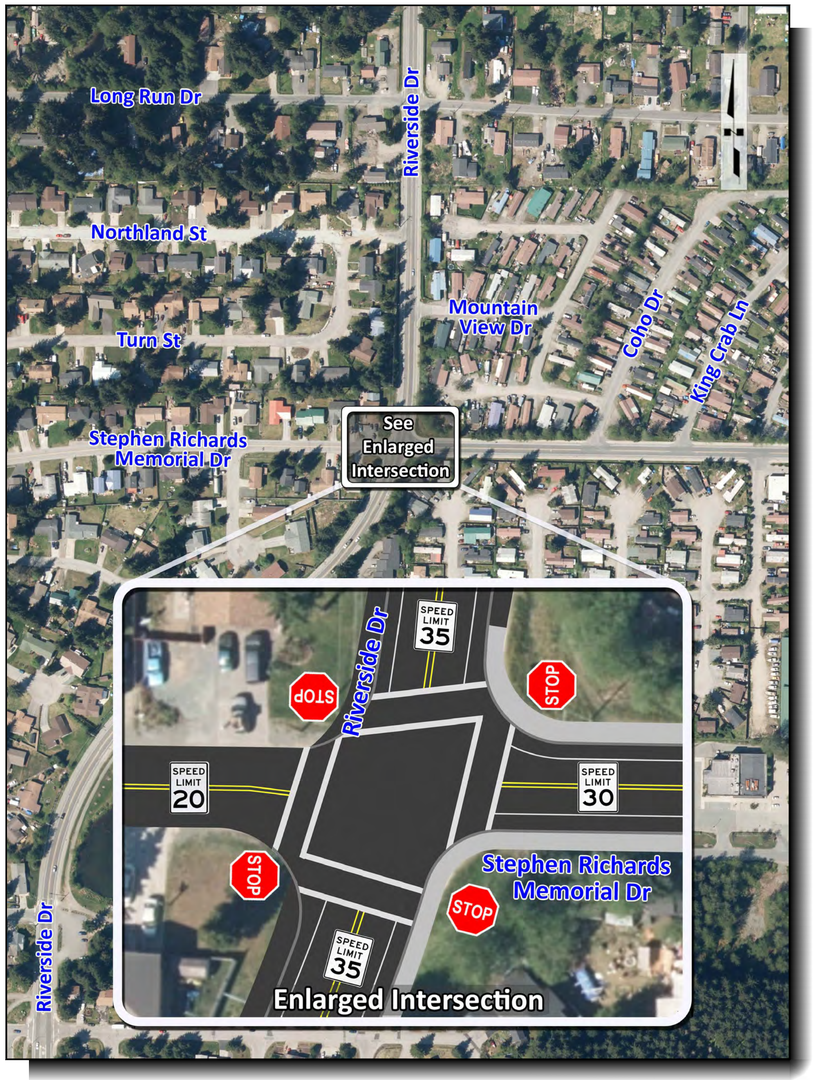
RIVERSIDE DRIVE & STEPHEN RICHARDS CONGESTION MITIGATION

PROJECT # SFHWY00081/0003207

Existing Conditions



All-way stop with flashing beacon installed in 2008 - crash rate decreased

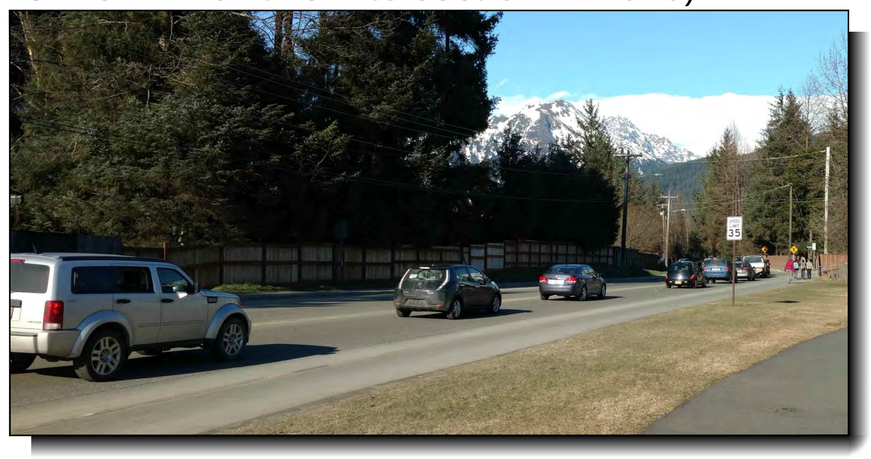
Peak Hour Delay

	Seconds per Vehicle		Vehicle-Hours per Day		Weekly Minutes per Vehicle	
	Now	2040	Now	2040	Now	2040
AM Peak	89	112	29	39	7.4	9.3
PM Peak	89	151	33	64	7.4	12.6
Combined			62	103	14.8	21.9

Pedestrians have the right of way and no delay.

DOT&PF's Target: Less than 35 seconds of delay per vehicle
(12 hrs AM/15 hrs PM for this intersection in 2040)

This is similar to the peak hour delay on Fritz Cove Rd at Glacier Hwy or 12th Ave at Egan Dr.



Option 1A: Two-Way Stop Control

REMOVE STOP SIGNS ON RIVERSIDE DRIVE

DELAY: Less than existing.

2040 Peak Hour Delay

	Seconds per Vehicle	Vehicle-Hours per Day	Weekly Minutes per Vehicle
AM Peak	138.9	48	11.6
PM Peak	72.3	31	6.0
Combined		79	17.6

Delay is concentrated on Stephen Richards approaches

SAFETY: Anticipate 60% increase in crashes compared to all-way stop.

PEDESTRIAN DELAY: Very high. Crossing pedestrians likely to take risky gaps.

RIGHT OF WAY: No additional right of way.

COST: <$1,000

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Option 1B: Two-Way Stop Control

REMOVE STOP SIGNS ON RIVERSIDE DRIVE AND ADD TURN LANES TO EACH APPROACH

DELAY: Less than existing.

2040 Peak Hour Delay

	Seconds per Vehicle	Vehicle-Hours per Day	Weekly Minutes per Vehicle
AM Peak	56.0	20	4.7
PM Peak	20.6	9	1.7
Combined		29	6.4

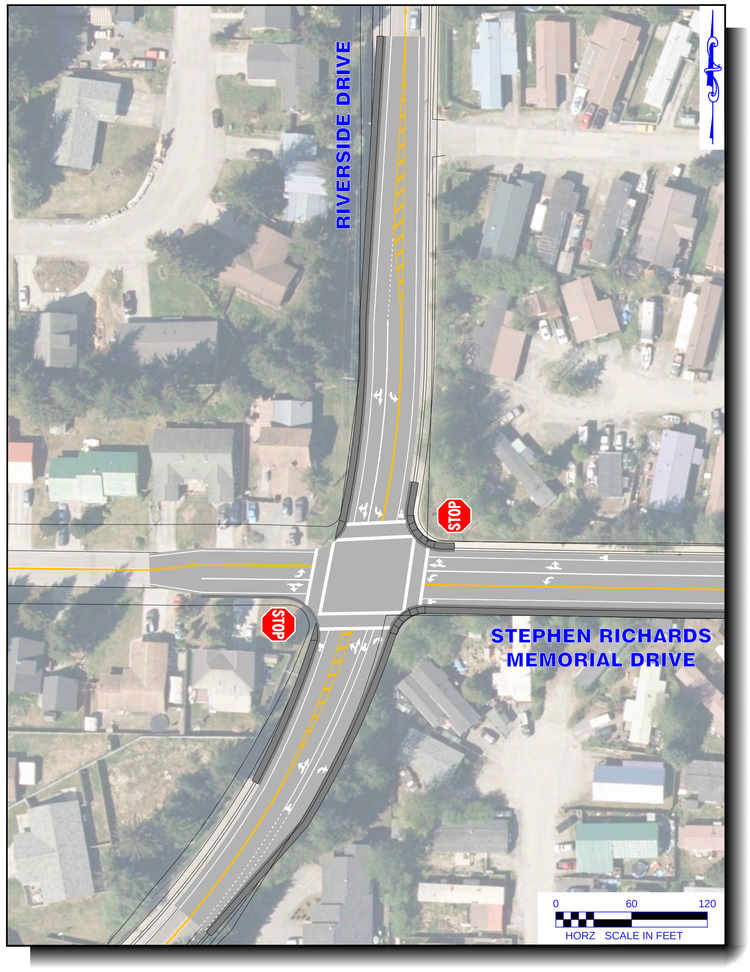
Delay is concentrated on Stephen Richards approaches

SAFETY: Anticipate 60% increase in crashes compared to all-way stop.

PEDESTRIAN DELAY: Very high. Crossing pedestrians likely to take risky gaps.

RIGHT OF WAY: Additional right of way along length of northbound right turn lane.

COST: Approx. $1.8 million



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Option 2: All-Way Stop Control With Turn Lanes

ADD SOUTHBOUND LEFT AND NORTHBOUND RIGHT TURN LANES TO EXISTING INTERSECTION

DELAY: Less than existing.

2040 Peak Hour Delay

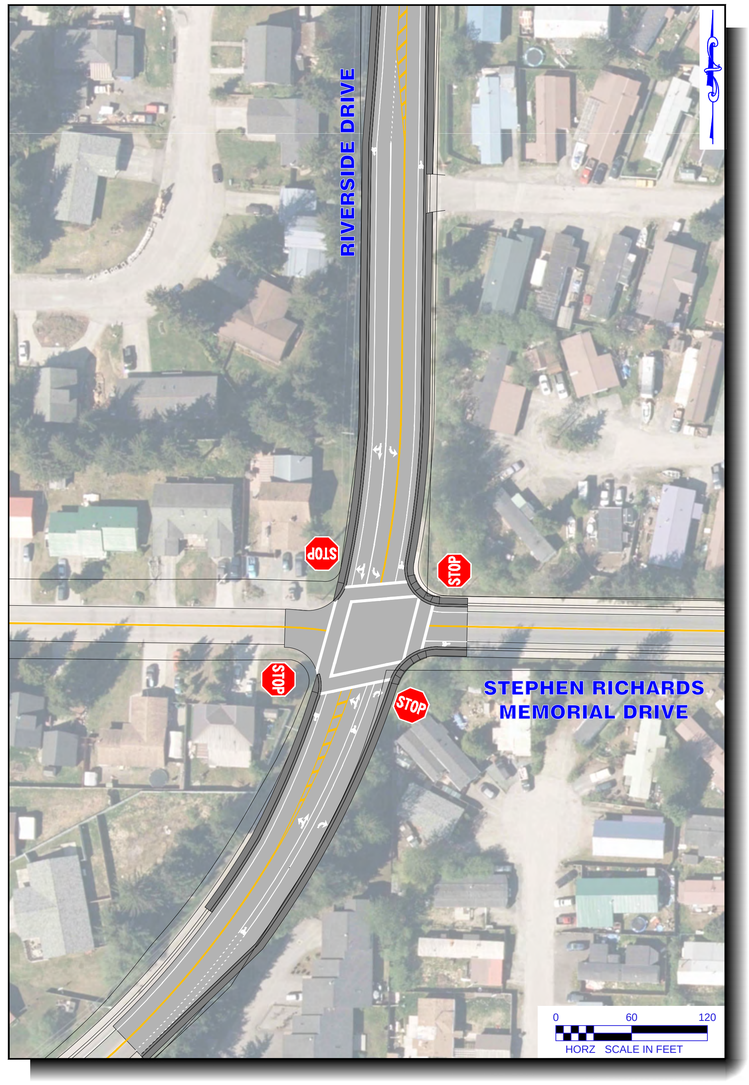
	Seconds per Vehicle	Vehicle-Hours per Day	Weekly Minutes per Vehicle
AM Peak	56.9	20	4.7
PM Peak	104.2	44	8.7
Combined		64	13.4

SAFETY: Same as existing.

PEDESTRIAN DELAY: No delay, similar to existing.

RIGHT OF WAY: Additional right of way along length of northbound turn lane.

COST: Approx. $1.6 Million



PRELIMINARY

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Option 3A: Single Lane Roundabout

MODERN ROUNDABOUT WITH 110-FOOT INSCRIBED DIAMETER

DELAY: Less than existing.

2040 Peak Hour Delay

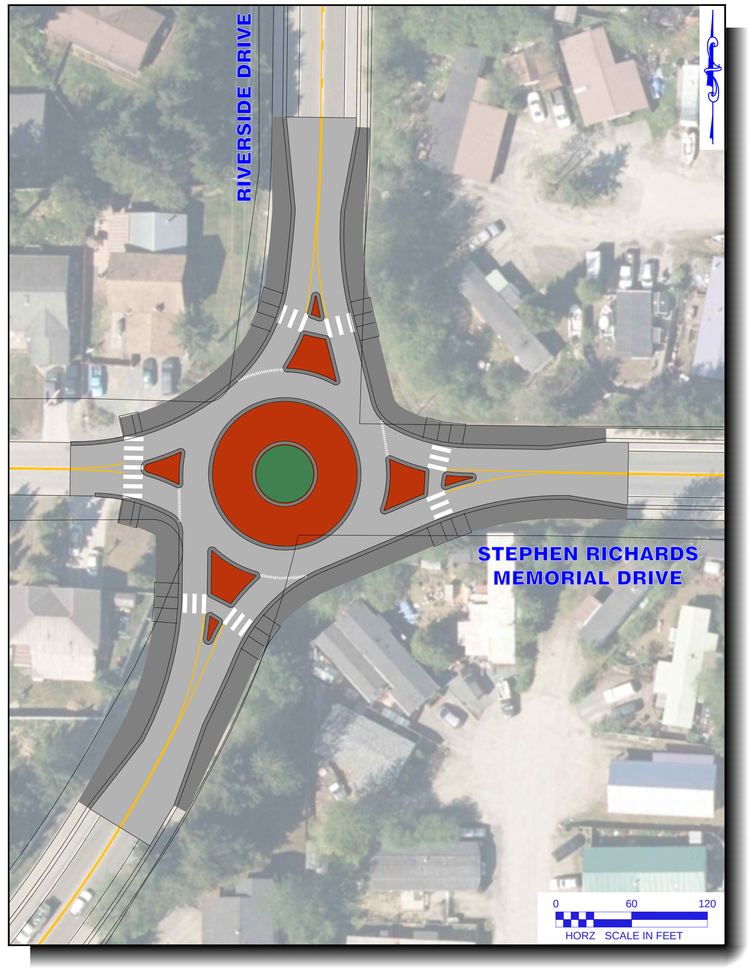
	Seconds per Vehicle	Vehicle-Hours per Day	Weekly Minutes per Vehicle
AM Peak	22.2	8	1.9
PM Peak	26.4	11	2.2
Combined		19	4.1

SAFETY: Same as existing.

PEDESTRIAN DELAY: Acceptable at 20 seconds or less.

RIGHT OF WAY: Need right of way in all 4 corners.

COST: Approx. $1.9 Million.



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Option 3B: Roundabout with NB Right Turn Lane

MODERN ROUNDABOUT WITH 110-FOOT INSCRIBED DIAMETER AND SEPARATE NORTHBOUND RIGHT TURN LANE

DELAY: Less than existing.

2040 Peak Hour Delay

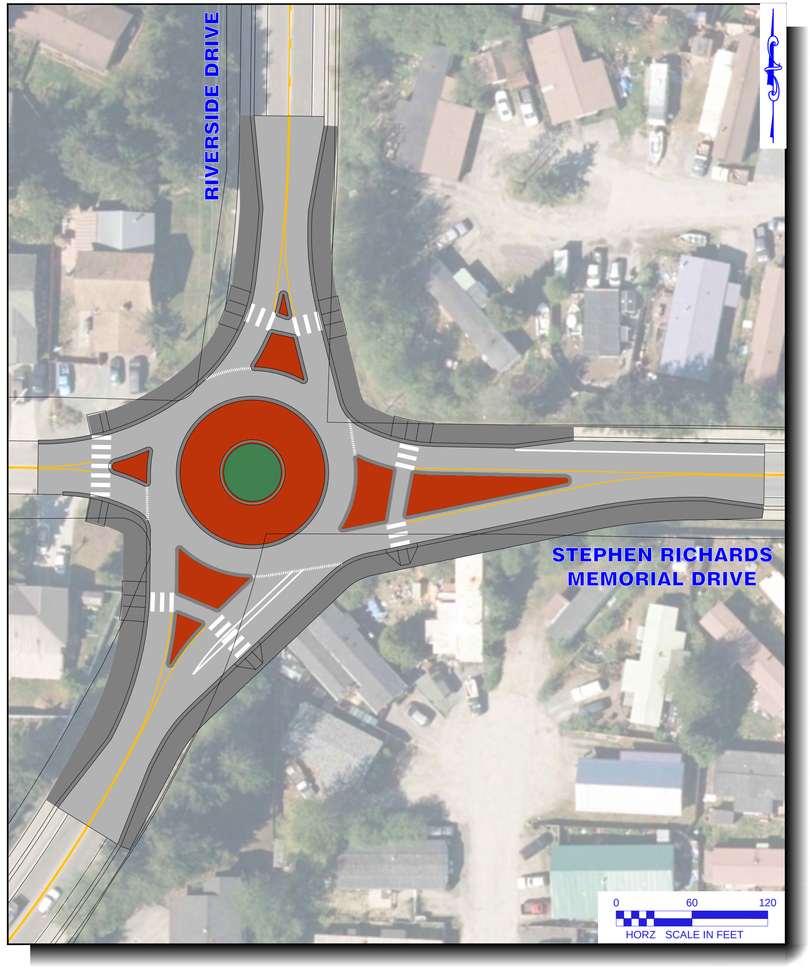
	Seconds per Vehicle	Vehicle-Hours per Day	Weekly Minutes per Vehicle
AM Peak	21.6	8	1.8
PM Peak	14.8	6	1.2
Combined		14	3.0

SAFETY: Same as existing.

PEDESTRIAN DELAY: Up to 53 seconds, which is undesireable.

RIGHT OF WAY: Need right of way in all 4 corners, with at least 2 relocations.

COST: Approx. $2.3 Million.



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Option 4: Compact Roundabout

SIMILAR TO STANDARD ROUNDABOUT, BUT MUCH SMALLER.
ISLANDS HAVE A LOW PROFILE SO LARGE VEHICLES CAN DRIVE OVER THEM.

DELAY: Less than existing.

2040 Peak Hour Delay

	Seconds per Vehicle	Vehicle-Hours per Day	Weekly Minutes per Vehicle
AM Peak	47.5*	17	4.0
PM Peak	36.7*	16	3.1
Combined		33	7.1

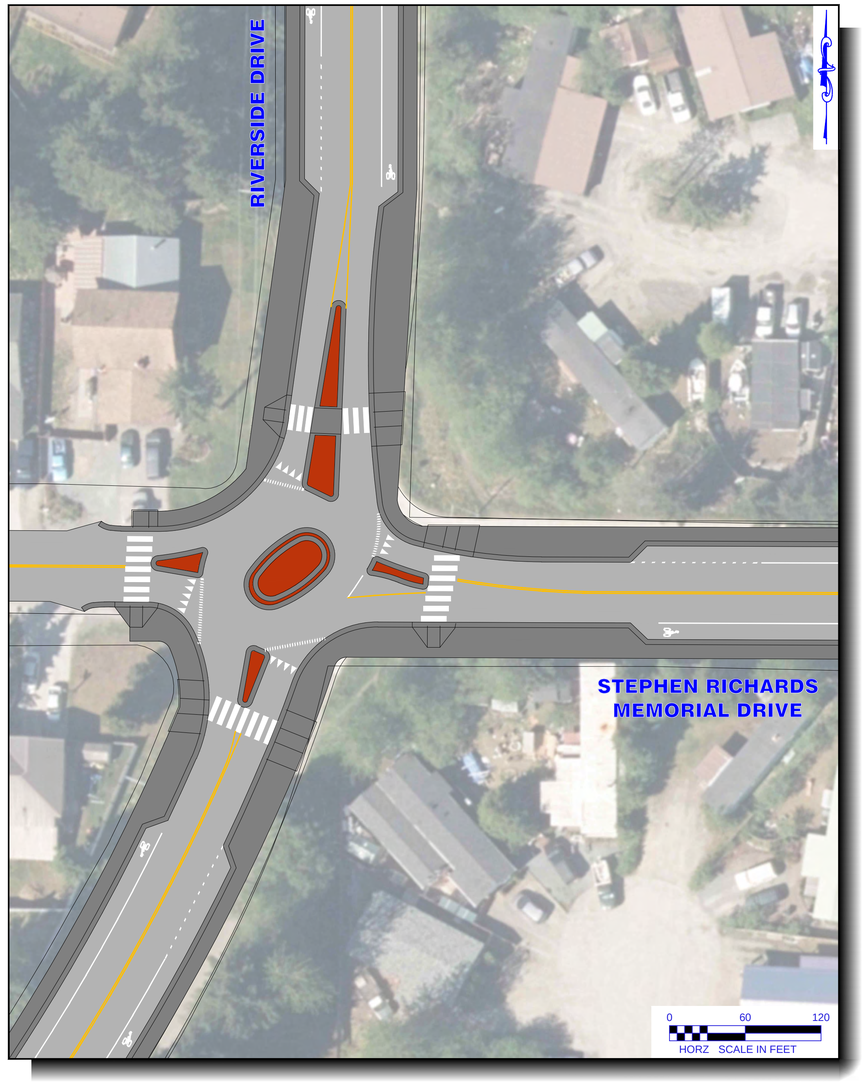
*Delay should decrease as drivers get familiar with roundabout

SAFETY: Same as existing.

PEDESTRIAN DELAY: Acceptable at 20 seconds or less.

RIGHT OF WAY: Minimal new right of way needed.

COST: Approx. $1.5 Million.



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Option 5: Signal

CONSTRUCT TRAFFIC SIGNAL AT EXISTING INTERSECTION
NO NEW TURN LANES ARE INCLUDED

DELAY: Less than existing.

2040 Peak Hour Delay

	Seconds per Vehicle	Vehicle-Hours per Day	Weekly Minutes per Vehicle
AM Peak	15.1	5	1.3
PM Peak	14.5	6	1.2
Combined		11	2.5

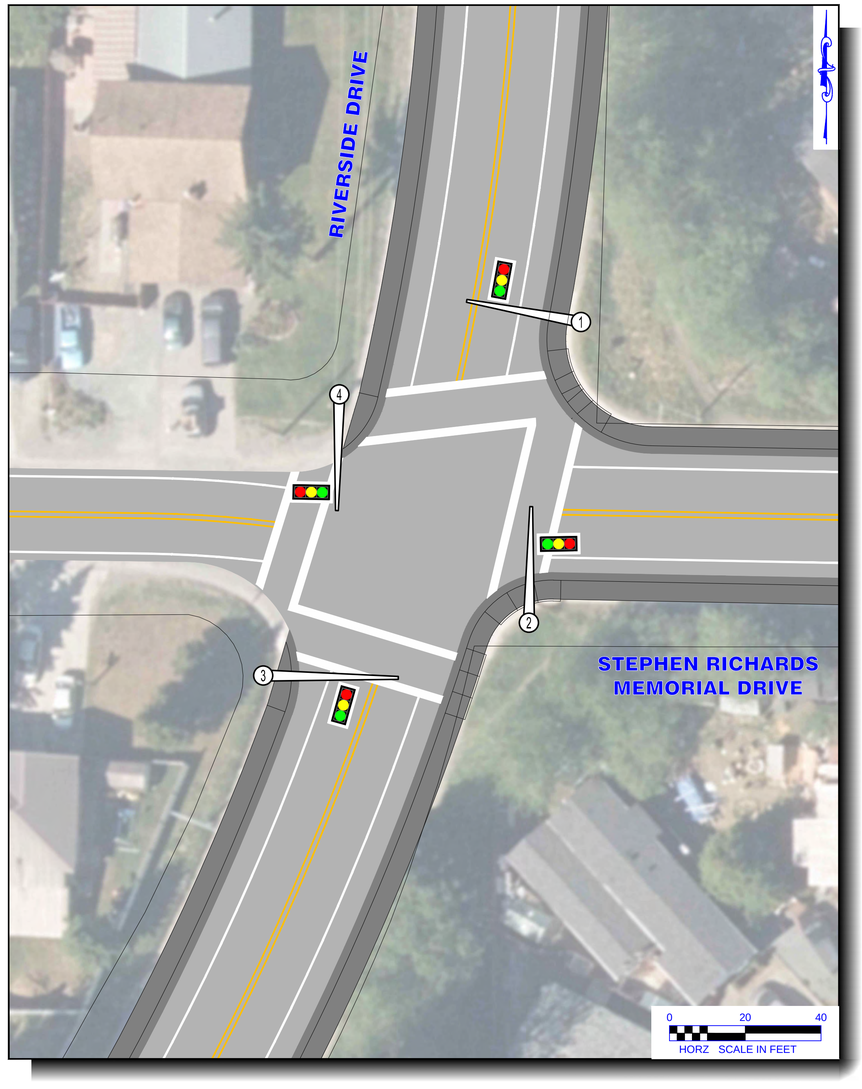
SAFETY: Anticipate 20% increase in crashes compared to all-way stop.

PEDESTRIAN DELAY: Acceptable at less than 30 seconds.

RIGHT OF WAY: Minimal new right of way needed.

COST: Approx. $1.3 Million.
Plus $10,000 per year for maintenance and operations.

Traffic signal does not meet warrants, which means the costs (maintenance, construction, additional off-peak delay) probably outweigh the peak-hour benefits.



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SUMMARY

Option	2040 PEAK HOUR DELAY				Estimated Cost	Minimizes ROW Required	Meets Delay Target	Maintains Reduced Crash Rate	Provides Desirable Ped Crossing
	Seconds per Vehicle		Vehicle-Hrs per Day	Weekly Minutes per Vehicle					
	AM	PM							
Existing Control	112.2	151.1	103	21.9	$0	●		●	●
1A: Two-way Stop	138.9	72.3	79	17.6	<$1,000	●			
1B: Two-Way Stop w/ Turn Lanes	56.0	20.6	29	6.4	~$1.8 Mil	○			
2: All-Way Stop w/Turn Lanes	56.9	104.2	64	13.4	~$1.6 Mil	○		●	●
3A: Roundabout	22.2	26.4	19	4.1	~$1.9 Mil		●	●	●
3B: Roundabout w/Turn Lane	21.6	14.8	14	3.0	~$2.3 Mil		●	○	○
4: Compact Roundabout	47.5	36.7	33	7.1	~$1.5 Mil	●	○	●	●
5: Traffic Signal	15.1	14.5	11	2.5	~$1.3 Mil	●	●	○	●

○ Partially meets, maintains, or provides listed criteria but likely below the desireable level

● Meets, maintains, or provides the listed criteria at a desireable level