



# NW Lake Road and NW Sierra Street Intersection - Alternatives Analysis



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# NW Lake Road and NW Sierra Street Intersection Alternatives Analysis

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**Presented By:**

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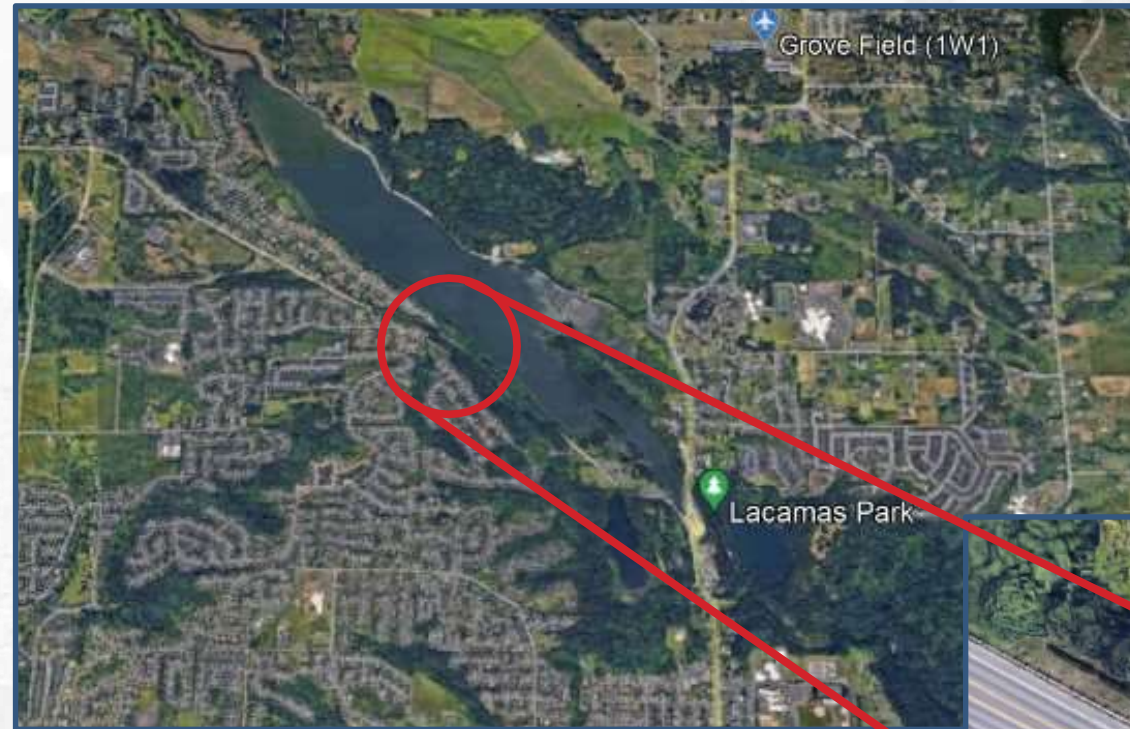


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# Project Location





# Project Goals & Funding



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## Project Goals:

- ✓ Reduce delays
- ✓ Improve safety
- ✓ Enhance multimodal travel

## Project Funding Options:

- ✓ Transportation Impact Fees (TIF)
- ? Public Works Trust Fund
- ? General obligation bond
- ? General Fund, REET

## Current funding:

- ✓ 2024 \$500,000 Budgeted. Additional funding will be needed for construction.



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# Traffic Analysis

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## Traffic Analysis Completed:

- ✓ **Collected existing traffic volumes and data**
- ✓ **Assessed current intersection safety and operations (e.g. delays)**
- ✓ **Forecasted future traffic volumes to 2045**
- ✓ **Assessed future safety and operations for signal, roundabout and “no-build” options**



# Traffic Analysis Results

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## Existing Conditions:

- ✓ 4 crashes in past 5 years (no injuries)
- ✓ Lake Road operating well (Level of Service (LOS) A, 9 second delay)
- ✓ Sierra Street fails operating standard (LOS E, 36 second delay)

## By 2045 without improvements:

- ✓ Traffic volumes increase 75% from existing conditions
- ✓ Lake Road operates well (LOS B/C, 12-15 second delay)
- ✓ Sierra Street
  - ✓ Vehicle delay >100 seconds
  - ✓ Vehicles back up past NW 45th Avenue to south
  - ✓ Level of service F (lowest level)



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# Alternatives Analysis

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## Intersection Improvements Alternatives Analysis:

- ✓ Traffic signal versus mini-roundabout versus no build
- ✓ Concept designs
- ✓ Analysis criteria
  - Safety
  - Traffic operations (delay and level of service)
  - Right of Way
  - Project cost
  - Construction impacts to public
  - Schedule
  - Steep slopes/retaining walls
  - Utility impacts
  - Operations and maintenance

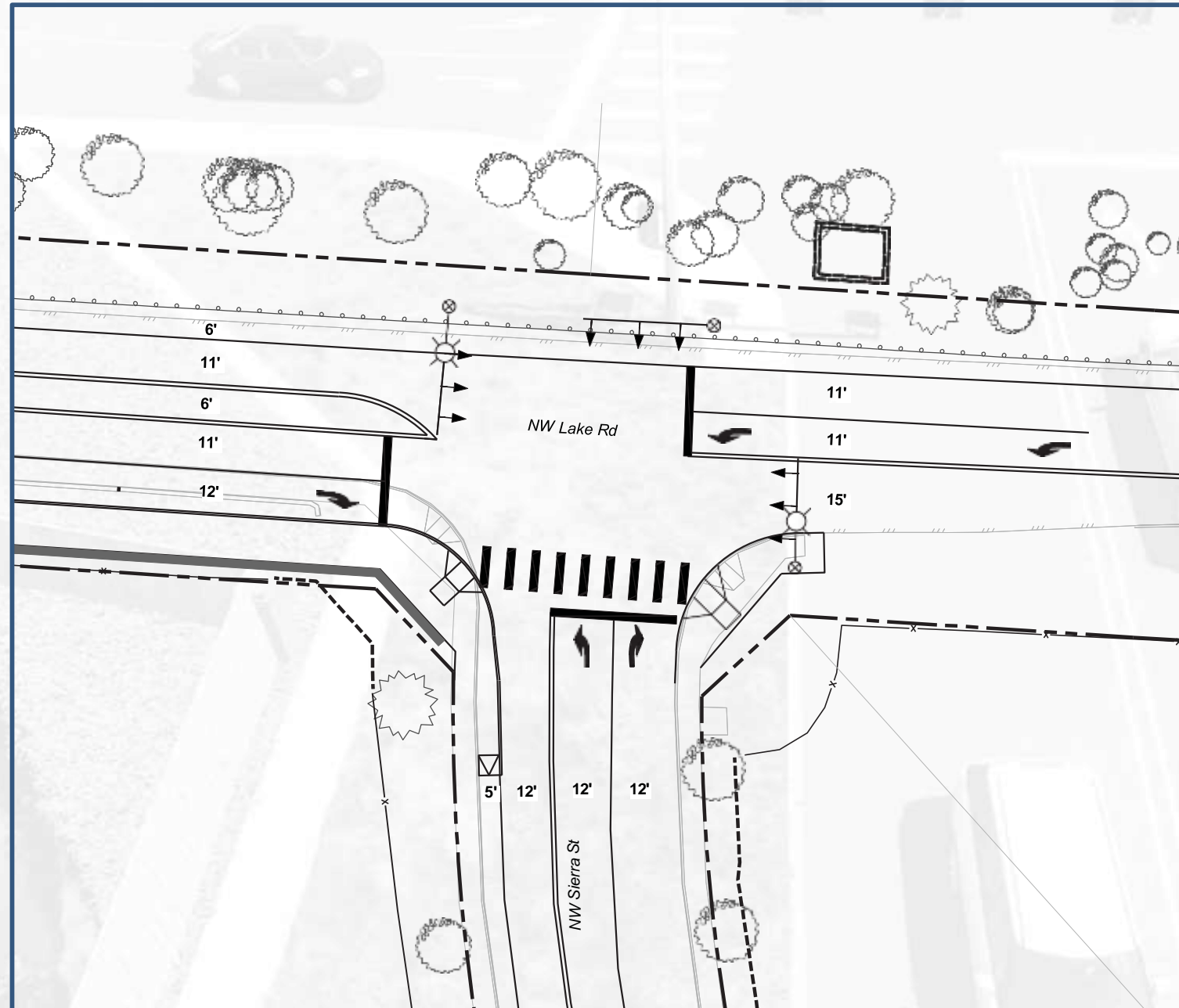




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# Traffic Signal Concept Design



## Benefits:

- ✓ Lower cost (\$1.7M vs \$3.1M)
- ✓ 14% crash reduction
- ✓ Less impact to
  - ROW acquisition
  - Private utilities
  - Retaining walls
  - Construction delays

## Challenges:

- ✓ Higher maintenance cost
- ✓ Off-peak delays
- ✓ Stopped traffic implications (noise, pollution)
- ✓ More conflict points



# Traffic Signal Rendering



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# Roundabout Concept Design



## Benefits:

- ✓ 20% crash reduction
- ✓ High safety rating - fewer serious injuries and conflict points
- ✓ Low maintenance
- ✓ Free flow traffic during off-peak hours

## Challenges:

- ✓ Higher cost (\$3.1M vs \$1.7M)
- ✓ ROW acquisition and impacts
- ✓ Construction phase impacts
- ✓ Additional retaining walls



# Roundabout Rendering



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# Alternatives Analysis Results

Analysis Criteria	Traffic Signal	Roundabout	No Build
Traffic Safety	Med	High	Low
AM Peak Traffic Times	C	B	B/ <b>F</b>
PM Peak	B	B	C/ <b>F</b>
Vehicle Capacity Ratio (Lake Rd/Sierra St)			
AM Peak	<b>0.93</b>	0.78	0.29/ <b>2.83</b>
PM Peak	0.73	0.83	0.36/ <b>3.63</b>
Vehicle Delay (secs.) (Lake Rd/Sierra St)			
AM Peak	20.5	11.9	11.8/>> <b>100</b>
PM Peak	12.3	13.0	15.4/>> <b>100</b>





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# Alternatives Analysis Results

Analysis Criteria	Traffic Signal	Roundabout	No Build
Right of Way Impacts/Costs	Low	High	None
Project Cost	\$1.7M	\$3.1M	None
Construction Phase Impacts	Med	High	None
Schedule	Low	High	None
Impacts to Steep Slopes and Need for Retaining Walls	Low	High	None
Private Utility Impacts	Med	High	None
Long-term Maintenance	Med	Low	Low



# City Council Discussion

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- ✓ **Council questions**
- ✓ **Request for Council input on:**
  - 1. Preferred alternative - traffic signal or roundabout**
  - 2. Consensus**





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## Next Steps

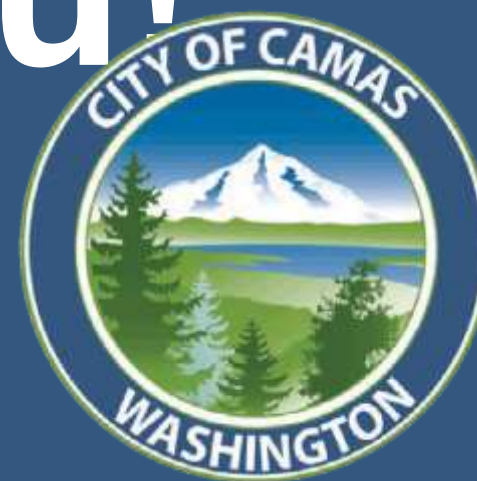
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- ✓ **Consultant design and public outreach professional services agreement (PSA) amendment**
- ✓ **Future anticipated City Council update**
  - **Review/approve PSA amendment**
- ✓ **Schedule**
  - **Dependent on funding and selected alternative**





Thank  
You!



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