

# Session 8 Adaptation

## Road Safety and Aging Populations

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Project Sponsor:  
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# How a Corridor Study Helped Me Understand the Needs of Aging Populations

- Study Sponsor
  - Wendy Clark-Getzin, PE, Transportation Planner, Jefferson County, Public Works
- Study Location:
  - Jefferson County, WA
  - Port Ludlow, an unincorporated community and Census Designated Place.
  - West of Seattle on the Olympic Peninsula.
- Study Objectives
  - Evaluate Community Concerns including:
    - Speeding - an ongoing concern for many years.
    - Stop sign running.
    - Unsafe intersection operations.
    - Uncontrolled pedestrian crossings.



# Study Area - Port Ludlow, WA

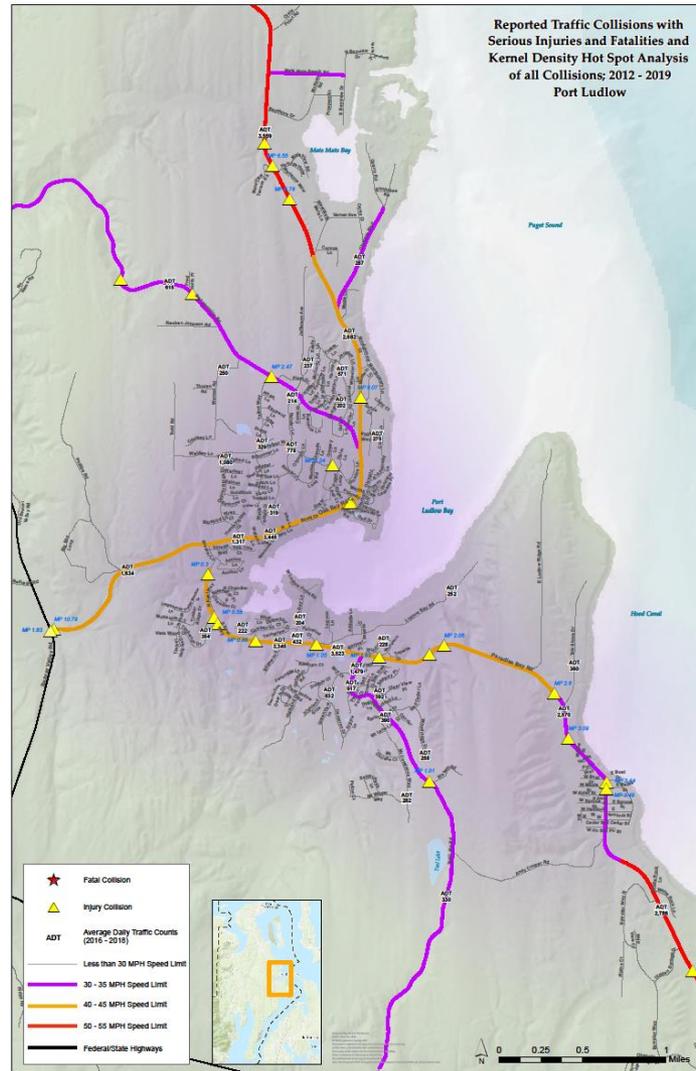


# Initial Data Collection

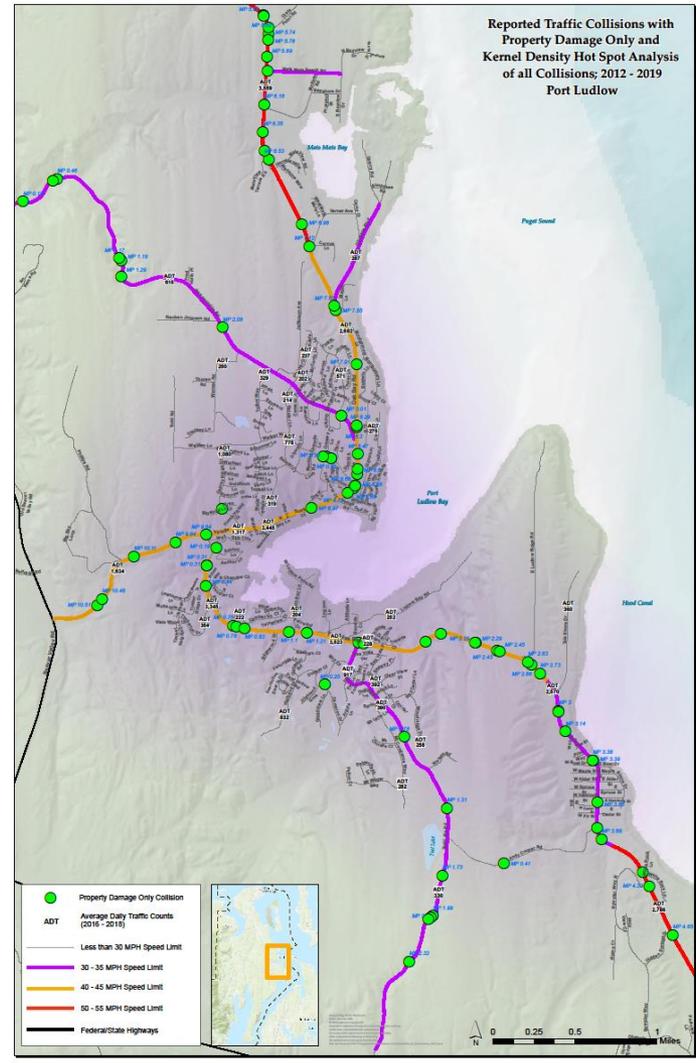
- Traffic Counts
  - AM, Midday, and PM
  - Vehicles, bicycles, and pedestrians counted
  - Collected with video counters
  - Video recordings were saved for stop sign running observations
- Crash History
  - 7 years of data reviewed
- Speed Data
  - Speed studies spanning 15 plus years reviewed
- Attended Presentation by the Port Ludlow Village Road Safety Committee



# Injury and Fatal Crashes



# Property Damage Only Crashes



# Initial Data Collection

- Speed Data
  - 85<sup>th</sup> Percentile Speeds generally 5 to 10 mph over the posted speed limit suggesting a speed limit increase could be considered.
  - A previous speed limit reduction was reversed after primarily local drivers were ticketed during follow up enforcement.
  - A successful speed reduction project took place that included the provision of urban amenities including a landscaped median in the central part of the study corridor adjacent to the community's commercial center.
- Input from the Port Ludlow Road Safety Committee
  - Speeding and unsafe intersection operations were major concerns.
  - I was able to take drive through the corridor with the committee members. This allowed me to observe their driving behavior.



# First Indications that Something was Different

- Road Safety Committee Presentation and study area tour
  - Presenters were retired Port Ludlow Community residents.
  - Comments made during the tour allowed me to understand their concerns from their perspective as a driver.
- Crash Data
  - Multiple asleep at the wheel crashes occurring during daylight hours.
  - Medical issue/fainting cited as causes for other crashes.
  - Multiple PDO only daytime run off the road crashes.
  - Low incidence of impaired driving.
  - One driver was over 90 years old.



# First Indications that Something was Different

- Stop Sign Running Data

Intersection	Start Time	End Time	At Speed	Rolling	Period Vehicle Count	Percent at Speed	Percent Rolling
Oak Bay Road/Marina View Drive/Walker Way	7:00 AM	8:00 AM	1	8	172	1%	5%
	8:00 AM	9:00 AM	0	4	256	0%	2%
	11:00 AM	12:00 PM	0	1	353	0%	0%
	12:00 PM	1:00 PM	1	8	395	0%	2%
	4:00 PM	5:00 PM	3	7	394	1%	2%
	5:00 PM	6:00 PM	8	3	320	3%	1%
		<b>Totals</b>	<b>13</b>	<b>31</b>	<b>1890</b>	<b>0.7%</b>	<b>1.6%</b>
Oak Bay Road/Paradise Bay Road/Osprey Ridge Drive	7:00 AM	8:00 AM	21	15	195	11%	8%
	8:00 AM	9:00 AM	16	12	268	6%	4%
	11:00 AM	12:00 PM	12	16	404	3%	4%
	12:00 PM	1:00 PM	5	41	420	1%	10%
	4:00 PM	5:00 PM	15	37	435	3%	9%
	5:00 PM	6:00 PM	29	15	330	9%	5%
		<b>Totals</b>	<b>98</b>	<b>136</b>	<b>2052</b>	<b>4.8%</b>	<b>6.6%</b>



# First Indications that Something was Different

- Stop Sign Running
  - Video review suggested that stop sign running was deliberate, not a result of stop sign visibility issues.
  - Traffic counts did not warrant all-way stop at an existing all-way stop or at three other two-way stops.
  - Intersections appear overbuilt with turn lanes not warranted by current values.
- Other Observed Behaviors
  - Some drivers were overly cautious at the same locations where other drivers were observed to deliberately run stop signs.
  - Some drivers were observed to miss acceptable gaps, or not recognize an acceptable gap when it was available or wait until the acceptable gap was almost too short to use.



# First Indications that Something was Different

- Public Input Relative to the Corridor Speeding and Safety
  - Public comments related to speeding and safety split nearly 50/50 with half of respondents believing there were safety issues in the corridor and half not believing there were safety issues in the corridor.
  - Some respondents believed it was pass-through traffic causing the problem, not local drivers.
- Results of Enhanced Enforcement
  - Enhanced enforcement prior to the study resulted in tickets being issued to mostly local drivers (one individual stopped twice in the same day)



# Why Investigate Demographics?

- The stakeholders I met with were very concerned and truly believed there was a problem.
- I did not feel the same level of discomfort that they were describing when driving the corridor with them.
- I experienced my father's loss of driving skills at 85 years of age a few years prior.
- The crash data suggested a population with fatigue and medical issues was using the corridor.



# How to Investigate Demographics?

- Port Ludlow is a Census Designated Place (CDP) and local demographic data was readily available.
- Web searches provided quick links to summary data for the State of Washington and the Port Ludlow Community.



# State of Washington Demographics

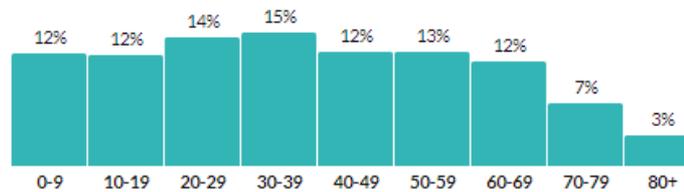
## Age

**37.7**

Median age

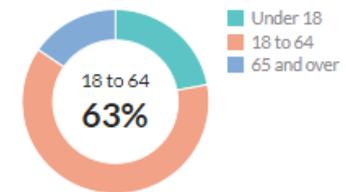
about the same as the figure in United States: 38.2

Population by age range



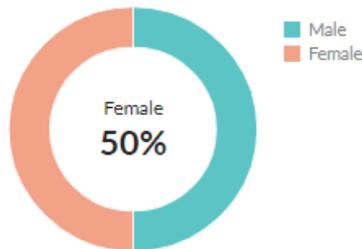
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Population by age category



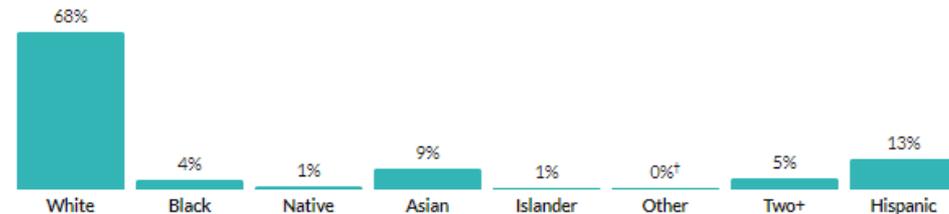
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## Sex



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## Race & Ethnicity



\* Hispanic includes respondents of any race. Other categories are non-Hispanic.

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# Port Ludlow Demographics

## Age

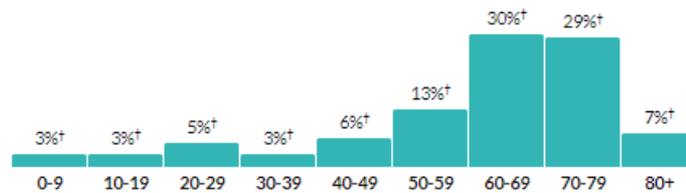
**66.2** ±3.6

Median age

about 10 percent higher than the figure in Jefferson County: 57.9 ±0.4

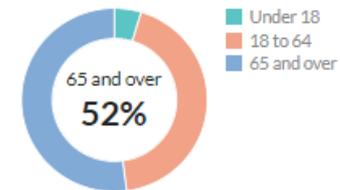
more than 1.5 times the figure in Washington: 37.6 ±0.1

Population by age range



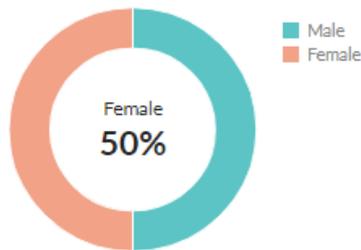
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Population by age category



Show data / Embed

## Sex



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Source: censusreporter.org



# Considerations for Aging Drivers

- Aging drivers may not perceive oncoming vehicle speeds because of changes in visual acuity.
  - This makes judging acceptable gaps at intersections more challenging, consistent with field and video observations.
- What feels like a dangerous blind curve with inadequate sight distance to an aging driver may feel completely safe to a younger driver.
  - This is consistent with public input suggesting some drivers do not have the same perception of safety as others.
- As drivers age, they often require more time to make driving decisions or take actions.
  - In addition to loss of visual acuity aging drivers typically have longer decision making and reaction times.
  - This was consistent with observed decision making at the studied intersections



# What Does this Mean for Corridors Utilized by Aging Populations?

- The Federal Highway Administration now recommends that road designs consider aging drivers.
- Design standards developed for average drivers may not be appropriate for aging drivers.
- Increasing sight distance to mitigate or accommodate high operating speeds on rural roads may not help aging drivers. Speed is the challenge.
- Lower operating speeds (not just lowering speed limits) utilizing narrower travel lanes with wider shoulders will likely provide more benefits to aging drivers by reducing the required decision and time and the severity of crashes that do occur.
- Intersections should be simplified to reduce speeds, conflict points and associated decision-making tasks. Roundabouts do this exceptionally well while supporting lower corridor operating speeds.



# Other Considerations

- Community Engagement
  - Provide education to aging drivers so they recognize when it is time to give up their keys (or fobs). AARP has online resources for this.
- Reduce the Need to Drive
  - Explore public or private shuttle service to provide aging drivers with options to driving a car. This can be very effective in denser retirement communities
  - Encourage mixed use in retirement communities including full-service retail, medical, professional services, and entertainment options.



# Closing Comments

- Should Every Road be Designed for Aging Drivers?
  - Probably not, but if over 60% of the local population is over 60 years of age of it should probably be considered.
- Is a Design Speed 10 mph Over the Posted Speed Really Safer?
  - Not if it encourages even higher operating speeds resulting in more difficult driving tasks for aging drivers, especially at intersections.



Thank You



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