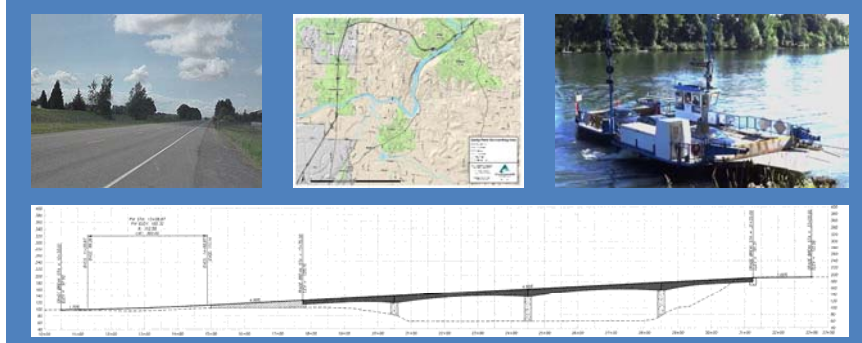


# Canby Ferry Alternatives Feasibility Study: Report of Draft Findings



January 30, 2019 – Board of County Commissioners Planning Session



## Agenda for Today's Planning

- Introduction
- Presentation of Draft Findings
- Board discussion, comments and questions
- Board input on February 19, 2019 Listening Session

## Why Study Ferry Alternatives?

As transportation, the Canby Ferry has limitations:

<b><i>Restricted times</i></b>	<b><i>Limited capacity</i></b>	<b><i>Loses money</i></b>
Can't operate when: - River above 70 feet - Inclement weather	Holds 6 vehicles and serves 200 vehicles/day	Lost an average \$400,000/year for last 3 years



Therefore, we analyzed possible alternatives  
for crossing the Willamette river.



3

## Issues Raised at January 15 Public Meeting

### Concerns

- Increased traffic, safety and noise issues
- Impacts to surrounding properties
- Analysis of traffic/cost/tolling/bonding
- Change to community character
- Addition of bridge does not serve community needs



4


## Analysis Assumptions

Timeframe:

- 2025-2049 (25 years)

Finances:


- Replace ferry in 2035 (\$2.5 million)
- Inflation applied to both revenues, costs


5

## Four Major Alternatives

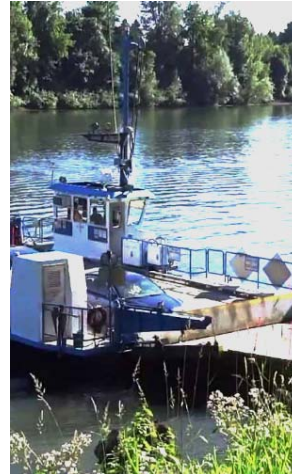
<b>01</b> Continue Operating the Canby Ferry  Or.....	<b>02</b> Stop Operating the Canby Ferry  And/or.....	<b>03</b> Build Publicly Funded Bridge at Canby Ferry  Or.....	<b>04</b> Build Toll Funded Bridge at Canby Ferry
--	--	---	--

*Both Alternative #1 and Alternative #2 can be combined with either Alternative #3 or Alternative #4*


6

## Alternative #1: Continue the Ferry

- Extend current service to 2049
- Continue current level of use, with maximum 45,000 annual average ridership
- Continue current toll of \$5
- Buy new ferry when needed, expected by 2035
- Grants available for major repairs, but none available to support ferry operations
- No other organizations available to take over ferry operations



7

Revenue from fares	\$4,950,586
Cost of operations and personnel	-\$15,831,699
Cost of maintenance	-\$3,071,874
Cost of Ferry replacement	-\$2,500,000
<b>Total</b>	<b>-\$16,452,986</b>

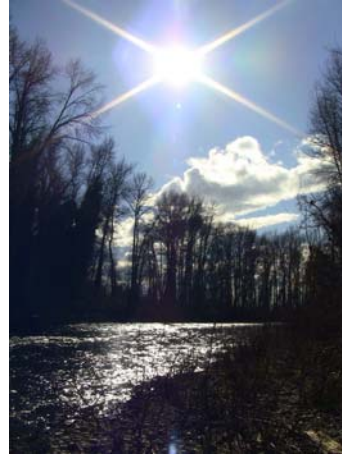
## Alternative #1: Total Costs, 2025-2049



8

## Alternative #2: Stop Ferry Operations

- Stop Ferry operations by 2025
- Do not replace the Ferry with any other transportation option for crossing the river in that area
- Requires decommissioning the ferry, removing facilities and changes to signs
- Reimburse portion of Federal Highway Administration grant funds, if necessary



Decommission, remove facilities, change signs	-\$1,500,000
Reimburse Federal Highway Administration (if necessary)	-\$360,000
<b>Total cost</b>	<b>-\$1,860,000</b>

### Alternative #2: Total Costs, 2025-49



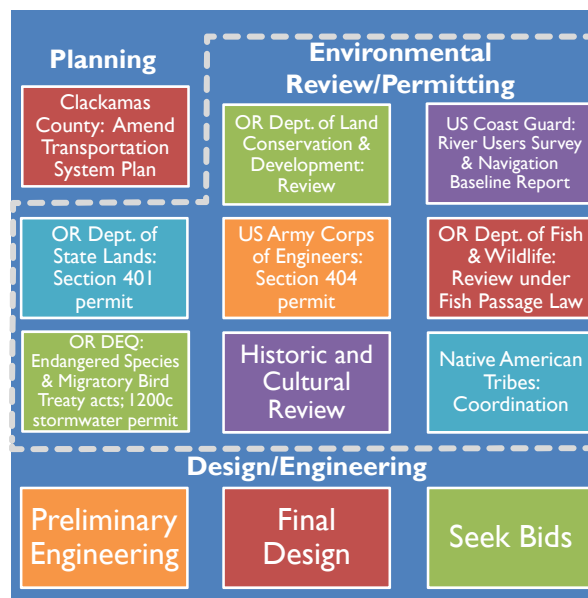
## Alternative #3: Build Bridge Adjacent to Ferry Location

### Bridge Concept:

- 2 traffic lanes, 2 shoulder/bike lanes, 1 sidewalk
- Length: 1,350 foot span from bluff top to bluff top
- Height: 70 - 100 feet above river
- 1 - 2 supporting piers in river
- Built to withstand major earthquake
- Combined total of 1,200 feet of improvement to Locust St & Mountain Rd at bridge landing points




Steps required before a bridge could be built




## Estimated 25-year Costs for Bridge


Environmental Analysis, Permits, Design	\$6,840,000
Right-of-Way	\$1,542,000
Construction	\$30,207,500
Road and Intersection Improvements	\$2,160,056
Contingency (30%) on construction & right-of-way	<u>\$10,472,867</u>
<b>Total Design &amp; Construction</b>	<b>\$51,222,423</b>
Maintenance Cost for 25 years	<u>\$5,250,000</u>
<b>GRAND TOTAL</b>	<b>\$56,472,423</b>


13


## Bridge Funding Options




**Grants or Special Funds** – No grants are available for a project this size



**Road Fund** – Majority of County road fund used to maintain 1,400 miles of road.



**Bonding & Tolls** – Toll revenue used to pay bonds. Only motorists using the bridge would pay.


14

## Alternative #4: Toll Bridge



Sample Toll Transponder

- Two major benefits
  - **Revenue:** Tolling can raise revenue to pay for bridge construction and maintenance
  - **Traffic management:** Drivers are sensitive to tolling, so tolling reduces traffic
- Project funded with bonding. Toll revenue used to pay off bonds, maintain bridge and toll system



15

## Bonding

### What it is:

A form of long-term borrowing used by governments, similar to buying a home or business with a mortgage

### What we did:

Analyzed 12 bonding scenarios to find the lowest annual cost approach

### Optimum Alternative

- Full Faith and Credit
- Term = 25 years
- No capitalized interest
- Principal = \$52.7 million
- Interest rate = 5.68%\*
- Debt service (principal and interest) = \$106.8 million

\*2% above current rate as contingency



16



## Amortization Table for Optimum Alternative

Year	Debt Service	Year	Debt Service	Year	Debt Service
2025	\$2,811,603	2034	\$4,038,111	2043	\$4,904,954
2026	\$2,942,375	2035	\$4,130,601	2044	\$4,968,294
2027	\$3,212,375	2036	\$4,221,896	2045	\$5,030,816
2028	\$3,401,818	2037	\$4,322,691	2046	\$5,096,816
2029	\$3,602,689	2038	\$4,421,585	2047	\$5,164,961
2030	\$3,683,847	2039	\$4,523,497	2048	\$5,229,769
2031	\$3,769,607	2040	\$4,627,389	2049	\$5,300,295
2032	\$3,854,311	2041	\$4,732,202	<b>Total</b>	<b>\$106,776,741</b>
2033	\$3,942,391	2042	\$4,841,854		



## Toll Collection Options

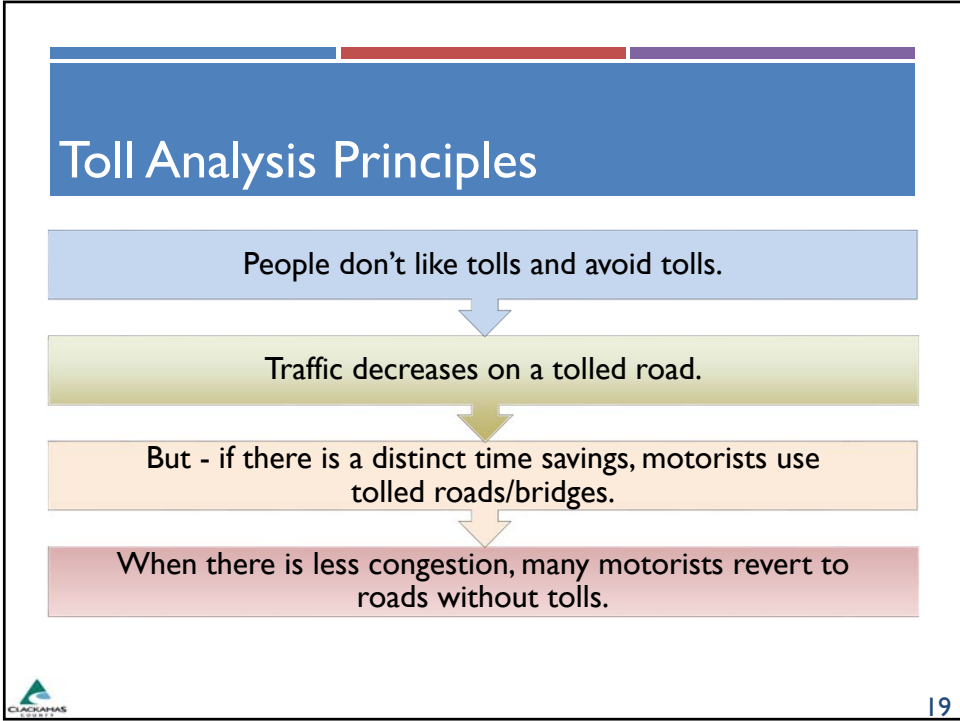
### All Cash (“traditional”)

- Typical method of toll collection until about 20 years ago
- Motorists drive to staffed toll booth, stop & pay cash
- Most expensive way to collect toll: \$1.06 per transaction
- Creates a safety and enforcement issue

### Electronic Toll Collection + License Plate Recognition

- Motorist with transponder in vehicle drives through reader. User account charged based on vehicle category.
- License plate recognition for vehicles without transponders;
- -\$2 surcharged added to toll for license plate recognition





## Toll / Traffic Scenarios

**Goals:**

- Keep traffic levels low (to lessen impact on adjacent roads) and...
- Have enough toll revenue to pay to build and maintain bridge

Analyzed Traffic Scenarios	
Scenario	Traffic (# of vehicles)
Low Traffic	Maximum of 200/hour, 3,000/day;
Moderate Traffic	Maximum of 300/hour, 4,000/day;
High Traffic	Maximum of 600/hour, 6,000/day;

20

## 2025 Toll Rates for each Scenario

- Tolls can vary by time of day and/or day of week
- Toll rates (below) will be increased for inflation to keep traffic levels at or below maximum
- \$2 surcharge for license plate recognition (~ 30% of users)

<b>Scenario</b> (vehicles/day)	<b>Peak Hours</b> (7 - 9 am, 3 - 6 pm)	<b>Mid-day</b> (9 am – 3 pm)	<b>Evening / Overnight</b> (6 pm – 7 am)
Low (2,000)	\$3.50	\$2.50	\$1.50
Moderate (3,000)	\$3.00	\$2.00	\$1.25
High (6,000)	\$2.00	\$1.25	\$1.25



21

## Annual Revenue Forecast for Low Traffic Scenario

<b>Year</b>	<b>Revenue</b>	<b>Year</b>	<b>Revenue</b>	<b>Year</b>	<b>Revenue</b>
2025	\$3,295,567	2034	\$4,733,195	2043	\$5,749,249
2026	\$3,448,850	2035	\$4,841,606	2044	\$5,823,493
2027	\$3,765,325	2036	\$4,948,616	2045	\$5,896,776
2028	\$3,987,377	2037	\$5,066,761	2046	\$5,974,137
2029	\$4,222,824	2038	\$5,182,678	2047	\$6,054,012
2030	\$4,317,952	2039	\$5,302,132	2048	\$6,129,976
2031	\$4,418,474	2040	\$5,423,907	2049	\$6,212,641
2032	\$4,517,758	2041	\$5,546,761	<b>Total</b>	<b>\$125,156,355</b>
2033	\$4,620,999	2042	\$5,675,288		



22

## Traffic Analysis Principles

People follow the shortest travel time route.

When a road connection is added, motorists shift routes to find the route with the shortest travel time.

Motorists use toll roads when it saves time. When there is no time savings or travel time is not important, motorists avoid toll roads.



23

## Models Used for Traffic/Toll Analysis

### Metro Travel Demand Model

- Determines level of congestion for every road and expected travel speed
- Assigns trips to shortest travel time route based on congestion at that hour of the day
- We worked with Metro to improve accuracy in the Canby area

### ECONorthwest Toll Model – Behavioral Model

- Used by Wash. Dept. of Transportation for toll projects
- Uses data on driver choices to estimate the number of motorists who would switch to a toll road based on expected reduction in travel time
- Estimated traffic and toll revenue at 7 toll rates from \$0 to \$4



24

## Traffic Analysis

Used the models to analyze the following:

1. Traffic changes on area roads
2. Travel from Canby to other places
3. Cut-through traffic from I-5 or I-205 using Canby Bridge
4. Change in traffic using Canby Bridge due to an incident on I-5 or I-205



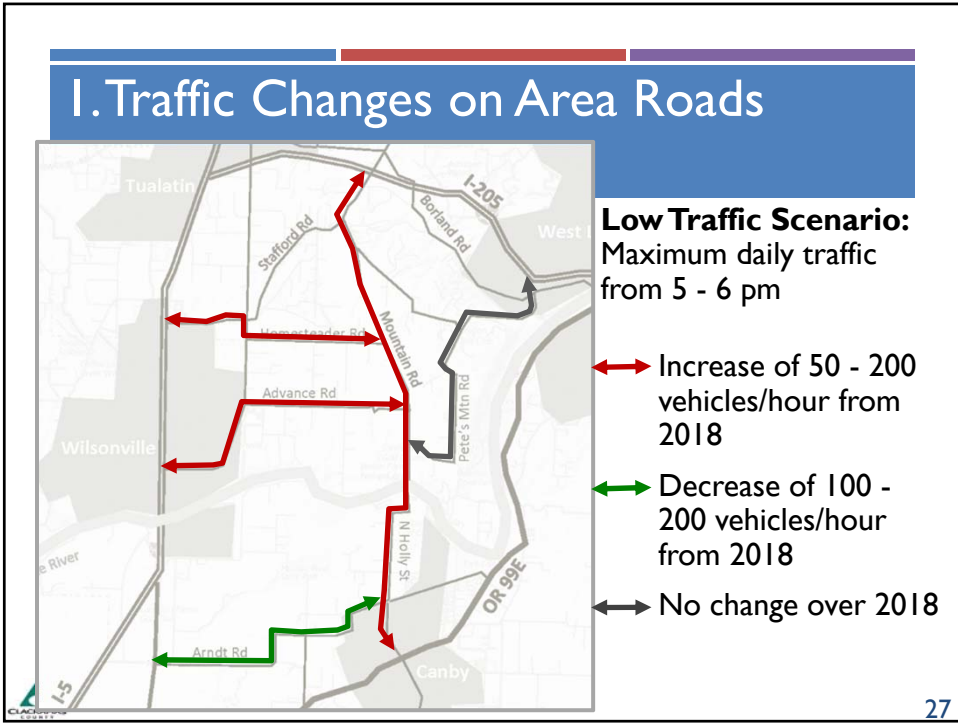
25

## I. Traffic Changes on Area Roads

1. **Analyzed traffic in the busiest hour of the afternoon (5-6 pm) with a \$3 toll**
2. **What we learned:**
  - Some travelers change routes to take advantage of shorter travel time on another route
  - These changes result in traffic decreases in some locations and traffic increases in other locations



26



## Traffic Changes on Area Roads

# of Cars/Hour at Busiest Time of Day (5 to 6 pm)

Road Segment	Current Traffic	Change with Bridge		
		Low Traffic	Moderate Traffic	High Traffic
Canby Bridge		+200	+300	+650
Holly St N of Territorial	50	+200	+300	+650
Holly St S of Territorial	475	+150	+250	+550
Territorial E of Holly St	575	0	0	+100
Mtn Rd S of Hoffman	25	+200	+300	+650
Mtn Rd N of Hoffman	150	+200	+300	+650
Advance Rd	75	+50	+100	+150
Pete's Mountain Rd	125	0	+25	+25
Stafford Rd S of I-205	1,450	+100	+200	+250
Willamette Falls Dr	600	0	0	0
Knight's Bridge Rd	650	-100	-200	-350
Arndt Rd	1,350	-150	-300	-375
Barlow Rd	750	-150	-200	-175

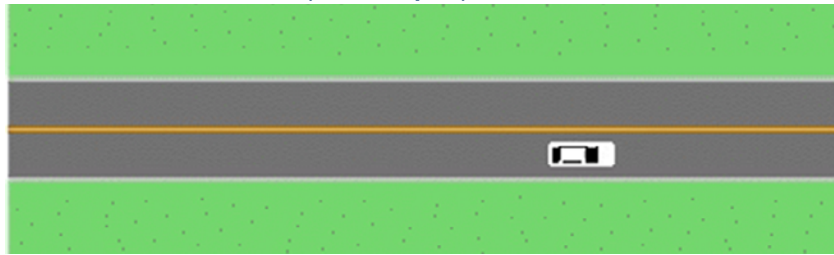
28

## Simulation of Holly, Locust & Mountain south of Hoffman: Maximum Traffic

2018 traffic = 50 cars/hour

Increase in traffic due bridge = 200 cars/hour

**Traffic at busiest time of day = 250 cars/hour**  
(5 to 6 pm)



## Weekday Traffic on Bridge by Hour

Time (AM)	Toll Rate	Vehicles/ Hour	Time (PM)	Toll Rate	Vehicles/ Hour
Midnight	\$1.50	36	Noon	\$1.50	172
1	\$1.50	30	1	\$1.50	180
2	\$1.50	27	2	\$1.50	166
3	\$1.50	18	3	\$3.00	189
4	\$1.50	78	4	\$3.50	209
5	\$1.50	113	5	\$3.50	243
6	\$3.50	108	6	\$2.50	163
7	\$3.50	197	7	\$1.50	144
8	\$3.50	231	8	\$1.50	140
9	\$2.50	194	9	\$1.50	125
10	\$2.50	131	10	\$1.50	103
11	\$1.50	161	11	\$1.50	73



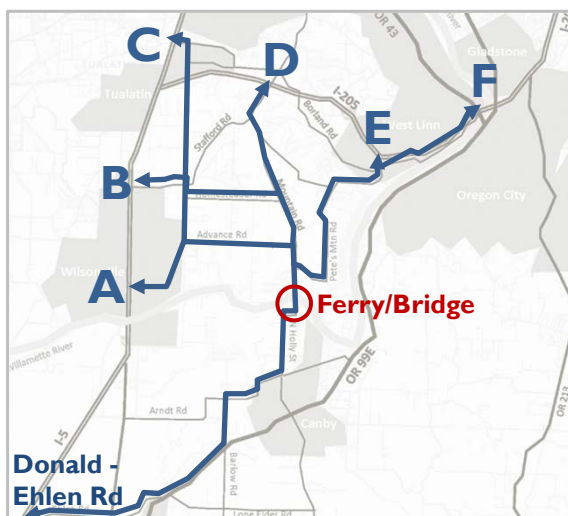
## 2. Travel from Canby to Other Places

1. Using the bridge **increases** travel time by **5+ minutes** when going to:
  - Oregon City, West Linn, Gladstone or Happy Valley
  - OR 99E continues to be the route with the shortest travel time
2. Using the bridge **decreases** travel time up to **2 minutes** when traveling to Wilsonville
3. Using the bridge **decreases** travel time more than **10 minutes** when going:
  - North of Wilsonville along I-5,
  - E.g., to Tualatin, Tigard, Beaverton, Hillsboro



31

## 3. I-5/I-205 Cut-through Routes



### Analyzed 6 routes:

- Connecting from I-5 Donald Rd / Ehlen Rd
- Across Canby Bridge
- To I-5 or I-205



32



### 3. Cut-through Traffic from I-5 or I-205

#### What we learned:

- **Canby Bridge would not save time for travelers cutting through to avoid I-5 or I-205**
  - Analyzed 5 to 6 pm traffic (when traffic is slowest) on the interstates
  - All cut-through routes must go around or through Canby and Aurora to connect to I-5 at the Donald / Ehlen Rd interchange
  - There is a lot of traffic delay on the route between Canby and I-5 at the Donald / Ehlen Rd interchange



33

### 4. Incident on I-5 / I-205

**Goal: Identify traffic diversion after a major incident on I-5/I-205 in heaviest afternoon traffic**

- 15-mph speed on:
  - I-5 (Donald/Ehlen Rd to I-5/I-205 interchange)
  - I-205 (10<sup>th</sup> St to I-5/I-205 interchange)
- \$3 toll rate

#### What We Learned:

- Travel time higher for all routes
- For interstate travelers, staying on the interstate remains the fastest option by about 10 minutes
- Only travelers to and from Canby save time by using the Canby Bridge



34

## Financial Summary of Alternatives: Costs and Revenues (\$ millions) over 25 Years

Alternative	Cost (debt service + operations + maintenance)	Revenue	Net Revenue
<b>1</b> Continue operating ferry	(\$21.40)	\$4.95	(\$16.45)
<b>2</b> Stop operating ferry	(\$1.86)	\$0	(\$1.86)
<b>3</b> Publicly-funded bridge	(\$56.47)	\$0	(\$56.47)
<b>4</b> A. Low Traffic Toll Bridge	(\$125.15)	\$125.25	\$0.10
B. Moderate Traffic Toll Bridge	(\$127.90)	\$141.80	\$13.90
C. High Traffic Toll Bridge	(\$135.00)	\$171.90	\$36.90



35

## Next Steps & Questions

- The Board of Commissioners will hold a listening session on **Tuesday, Feb. 19 at 6 p.m.** at the Canby Foursquare Church
- Presentation to Canby City Council, **March 6**
- The final report, including public input received throughout the process, will be presented to Board at a Policy Session, **March 12, 2019, 1:30 to 2:30 pm**

## Questions?



36