

Highway 213 and Beaver Creek Road Alternative Mobility Targets

CAG Meeting #2
March 2, 2017



Welcome

- Meeting Purpose
- Agenda
 - Overview of Technical Memorandum #2 6:10
 - Discussion 6:30
 - TAG's recommendations on capacity measures
 - TAG's recommendations related to safety measures
 - Next Steps 7:45
 - Adjourn 8:00

Recap of CAG Meeting #1

- Project Background
 - Policy
 - Existing Mobility Target to be exceeded by 2035
- Existing Conditions
 - Operations and Safety
 - Stream/Culvert
 - Wetlands
 - Steep Slopes/Landslides
- Discussion of Alternatives
- CAG Recommendations
 - Further refinement of Alternative 1 (Triple Lefts) and Alternative 3 (Displaced Left-turn)
 - Keep interchange on the table—refine cost estimate
 - Include ODOT and County at future CAG meetings

Policy Context

- Need regional financial support for a major roadway improvement
- Oregon City has an obligation to the State in their TSP to develop alternative mobility targets
- Accepting a higher level of congestion will allow the City to continue planning a solution and allow implementation of Concept Plans

Meeting Goals

- Meeting #1 (January 2017)
 - Understanding of project purpose and background
 - Discuss intersection alternative solutions that would address the forecast capacity needs
- Meeting #2 – (March 2017)
 - Understanding of options for alternative mobility targets and safety improvements
 - Discuss Technical Advisory Group recommendations
- Meeting #3 – (April 2017)
 - Recommendations for alternative mobility targets and near-term and long-term improvements

Potential Performance Measures for Alternative Mobility Targets: Operations (Table 4)

- Volume to Capacity (v/c) Ratio

- v/c compares demand (volumes) to supply (capacity)
- Existing Target: During the highest one-hour period of the day, a maximum v/c ratio of 0.99 shall be maintained

Year	PM Peak Volume-to-Capacity Ratio (v/c)
2011 (2013 TSP Existing Conditions)	0.83
2016 Traffic Volumes	0.97
2035 (2013 TSP Forecast)	1.05

- TAG Considerations

- Easily applied by the City and by property owners/developers
- May require additional hours of traffic count data collection
- Established methods of predicting and analyzing future v/c ratios

Performance Measures: Operations (cont'd)

- Intersection Delay
 - Average total vehicle delay of all movements through an intersection
- Intersection Level of Service (LOS)
 - A through F scale representing a traveler's perception of quality service (based on delay)
- Critical Movement Delay
 - Average total vehicle delay of the critical movements (four highest volume movements that conflict with each other)
- TAG Considerations
 - Easily applied by the City and by property owners/developers
 - May require additional hours of traffic count data collection
 - City uses LOS on their system, not ODOT's current metric

Performance Measures: Operations (cont'd)

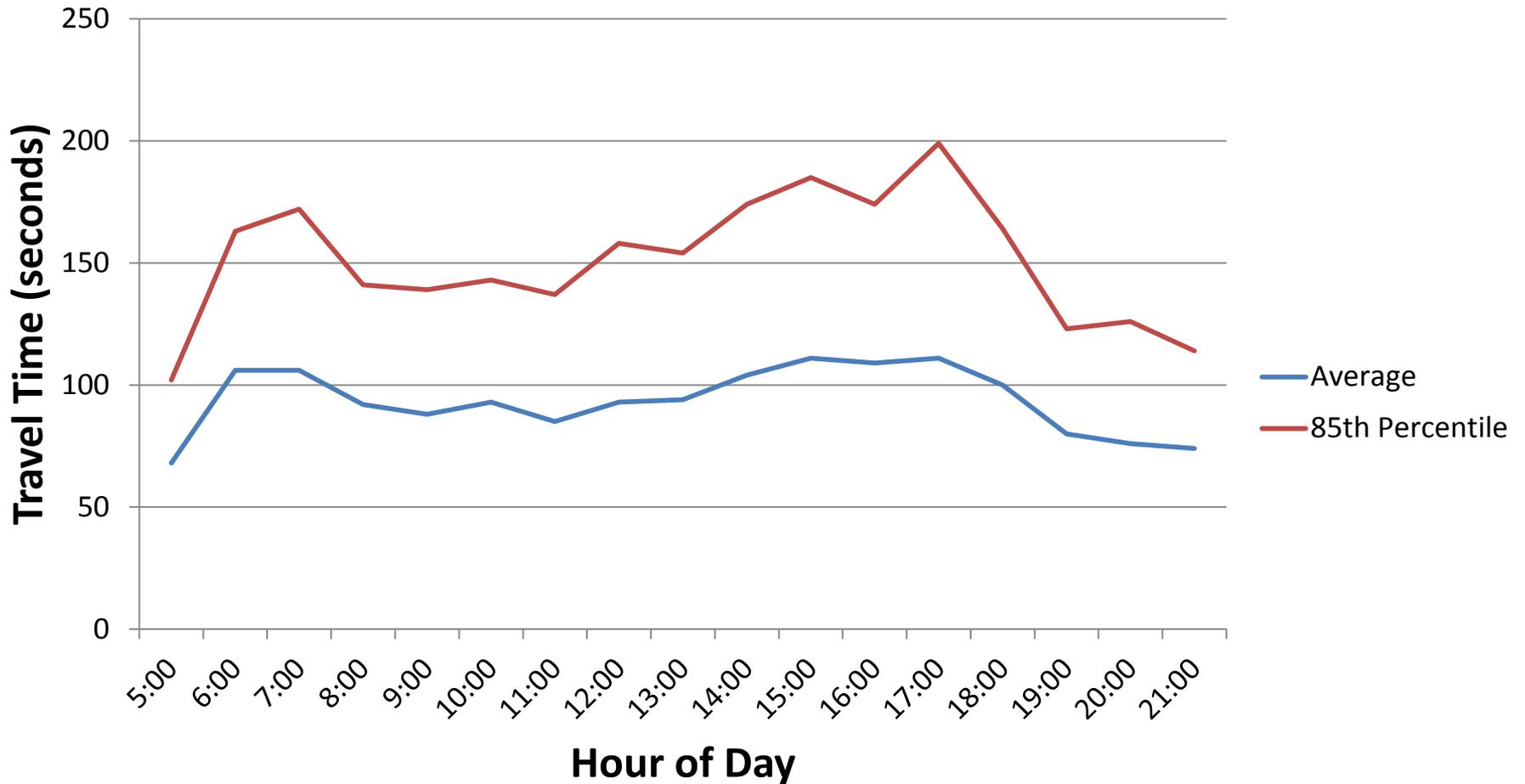
- Average Travel Time
 - Measure of how long it takes a vehicle to navigate the intersection (or corridor), including queued time for red light or congestion
 - TAG Considerations
 - Requires costly data collection
 - Difficult to assess impacts of small-scale development
- Travel Time Reliability
 - Measures variability between expected travel time and actual travel time
 - TAG Considerations
 - Requires costly data collection and use of new Metro model not readily available to all
 - Difficult to assess impacts of small-scale development

Performance Measures: Operations (cont'd)

- Average Speed
 - Average speed at which a vehicle is able to navigate the intersection
 - TAG Considerations:
 - Requires speed data collection
 - Difficult to assess impacts of small-scale development
- Congestion Duration
 - The proportion of the day that an intersection experiences congestion
 - TAG Considerations:
 - Requires costly data collection and use of Dynamic Travel Assignment model
 - Difficult to assess impacts of small-scale development
- Intersection Completeness
 - Percent of facilities constructed at an intersection
 - TAG Considerations:
 - Does not measure impact of a development

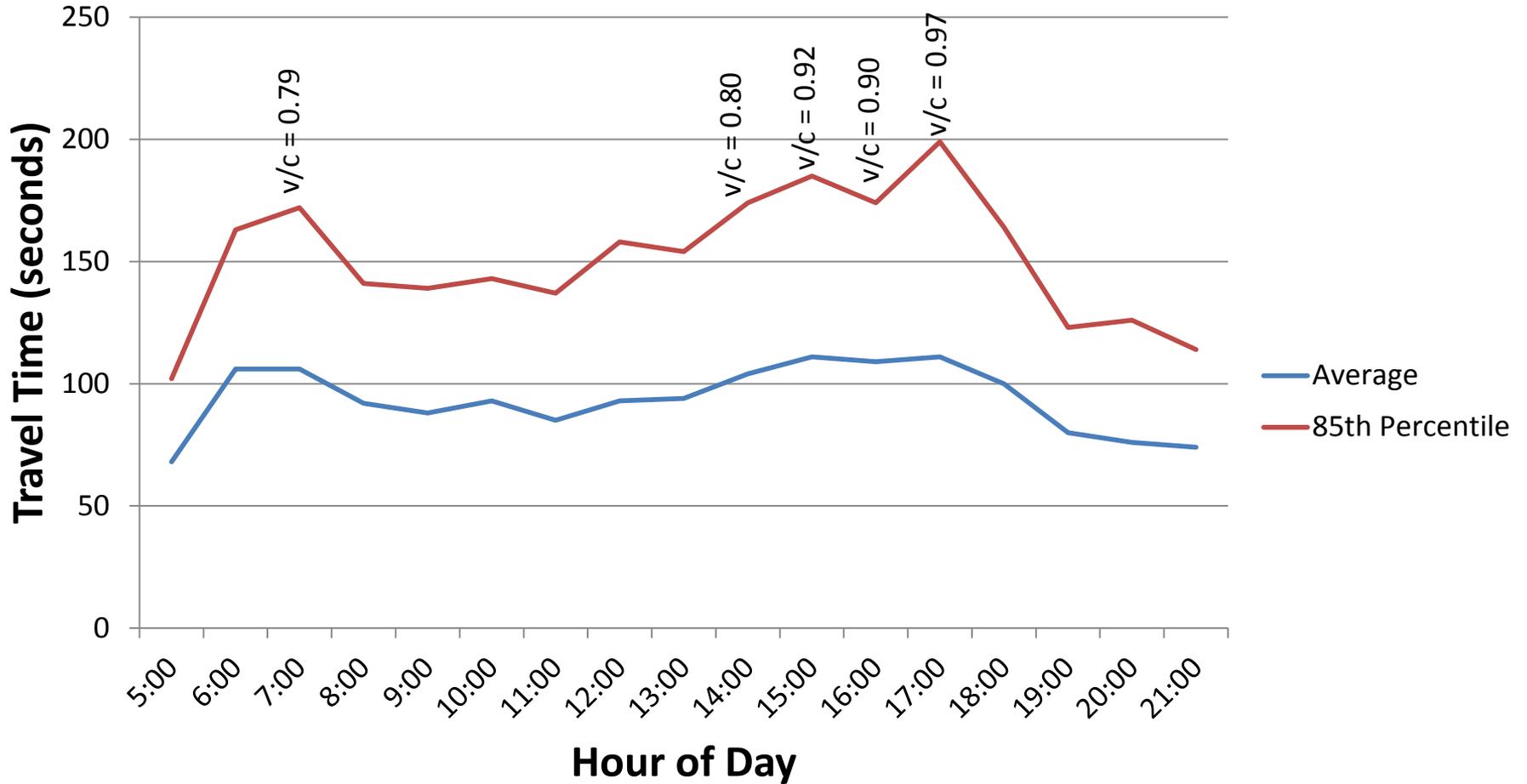
OR 213/Beavercreek Road Intersection

Travel Time (Typical Weekday – January 2017) – Exhibit 1



OR 213/Beavercreek Road Intersection

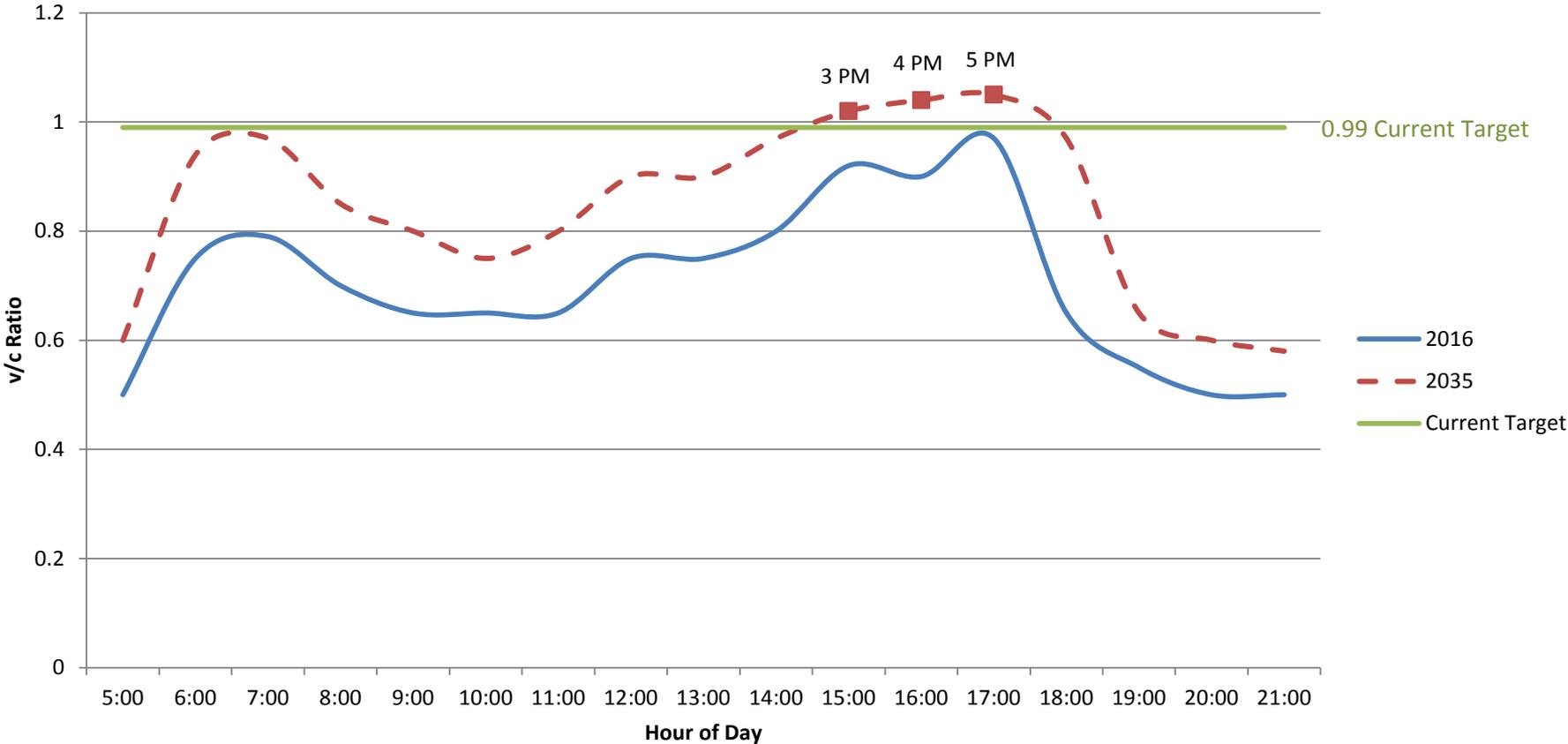
Travel Time (Typical Weekday – January 2017) – Exhibit 1



OR 213/Beavercreek Road Intersection

Volume-to-Capacity Ratio (existing and projected future)

Existing and Predicted Future Intersection v/c Ratios



TAG Recommendation

- Maintain current target of a v/c ratio of 0.99, but allow the intersection to exceed this ratio for no more than a specific number of hours per day (such as 3 hours or 5 hours, etc.).
- Consider applying at OR213/Redland Road as well.
- Why?
 - Easily measured, replicable, accessible to City and by property owners/developers
 - Builds on established method of forecasting need and measuring development impact

Performance Measures: Safety

- Crash Rate
 - Ratio of number of crashes per vehicle using the intersection
- Crash Frequency
 - Number of total crashes over a given time period
- Excess Proportions of Specific Crash Types
 - Difference in actual crashes by type compared to statewide averages

Recommendation

- Assess predicted crash rate of the intersection in the future
 - Verify that the safety impacts of growth are offset by potential safety improvements
- TAG Considerations:
 - Consider safety in combination with capacity measurement
 - Easy to calculate but difficult to evaluate/mitigate impacts of incremental growth

Safety and Capacity Improvements (Table 5)

- Could be implemented in tandem with the proposed Alternative Mobility Target
- Options not recommended by TAG
 - Increased all-red time
 - Red-light cameras
 - Increase shoulder width
- Recommended by TAG
 - Low Cost
 - Install Pedestrian Countdown Signal Displays
 - Improve Lighting
 - Medium Cost
 - Provide acceleration lane for WB to NB right turning vehicles
 - Eliminate westbound left-turn lane at OR213/Beavercreek Road and extend eastbound left-turn storage onto Maple Lane to reduce queuing in through lanes

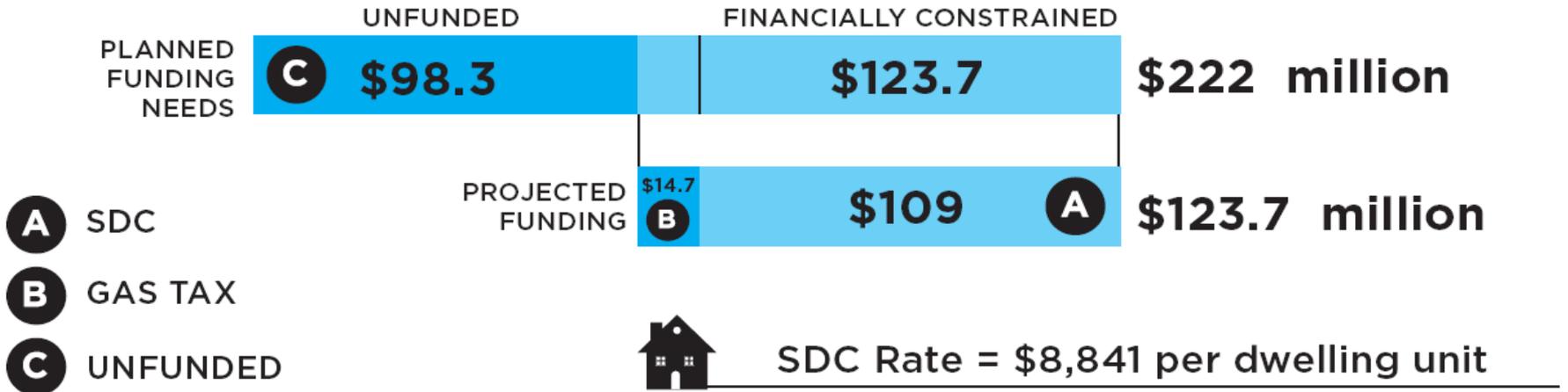
TAG Recommendation

- Evaluate predicted safety with the identified low and medium cost improvements
 - Low Cost
 - Install Pedestrian Countdown Signal Displays
 - Improve Lighting
 - Medium Cost
 - Provide acceleration lane for WB to NB right turning vehicles
 - Eliminate westbound left-turn lane at OR213/Beavercreek Road and extend eastbound left-turn storage onto Maple Lane to reduce queuing in through lanes
- Assess what can be incorporated into the financially constrained Transportation System Plan.

Funding



2035 TRANSPORTATION NEEDS AND FUNDING



Funding

Cost per Houshold

\$10 MILLION OF TRANSPORTATION IMPROVEMENTS

Improvement

CURRENT
NUMBER OF
HOUSEHOLDS

13,000



\$\$\$\$\$\$

\$769 per dwelling unit

PROJECTED
NEW
HOUSEHOLDS

8,000



\$\$\$\$\$\$
\$\$\$\$\$\$

\$1,250 per dwelling unit

TOTAL
FUTURE
HOUSEHOLDS

21,000



\$\$\$\$

\$476 per dwelling unit

Summary

- City is unable to fund a major intersection improvement on its own
- City has an obligation to the State to develop alternative mobility targets
- Can implement alternative mobility target and financially feasible improvements
- Interest in the community in identifying a regional long-term solution for the OR213/Beavercreek Road intersection

TAG Recommendations

1. Maintain current target of a v/c ratio of 0.99, but allow the intersection to exceed this ratio for no more than a specific number of hours per day (such as 3 hours or 5 hours, etc.).
 - Apply at OR213/Redland Road as well (has identified improvements in the TSP but improvements are not in financially constrained plan and are necessary to support the Concept Plans).
2. Assess predicted crash rate of the intersection in the future
 - Verify that the safety impacts of growth are offset by potential safety improvements
3. Assess what can be incorporated into the financially constrained Transportation System Plan.
4. Support community desire to identify long-term regional solution.

Discussion

1. Can we support the TAG's recommendation to maintain the current target of a v/c ratio of 0.99, but allow the intersection to exceed this ratio for no more than a specific number of hours per day?
 - Any concerns about applying to OR213/Redland Road as well?
2. Can we support the TAG's recommendation to identify what improvements would off-set the safety impacts of growth and seek to get those improvements in the financially constrained TSP?

Next Steps

- Future meetings with TAG and CAG (April 20th?)
 - Finalize alternative mobility target and preferred improvement(s) to be adopted into TSP
- Recommendations need to be approved by Planning Commission and City Council to amend the TSP
- Alternative mobility targets need to be approved by the Oregon Transportation Commission and recommended by ODOT.



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TRANSPORTATION ENGINEERING/PLANNING

Alternative 1 - Triple Left Turns

- Maintains existing intersection control
- Third southbound left-turn lane and third northbound through lane
- $v/c = 0.90$ (may not provide benefit commensurate with costs)
- Likely will NOT impact the northwest and northeast corners
- Increase intersection crossing distances for pedestrians/bikes
- \$5-\$10M



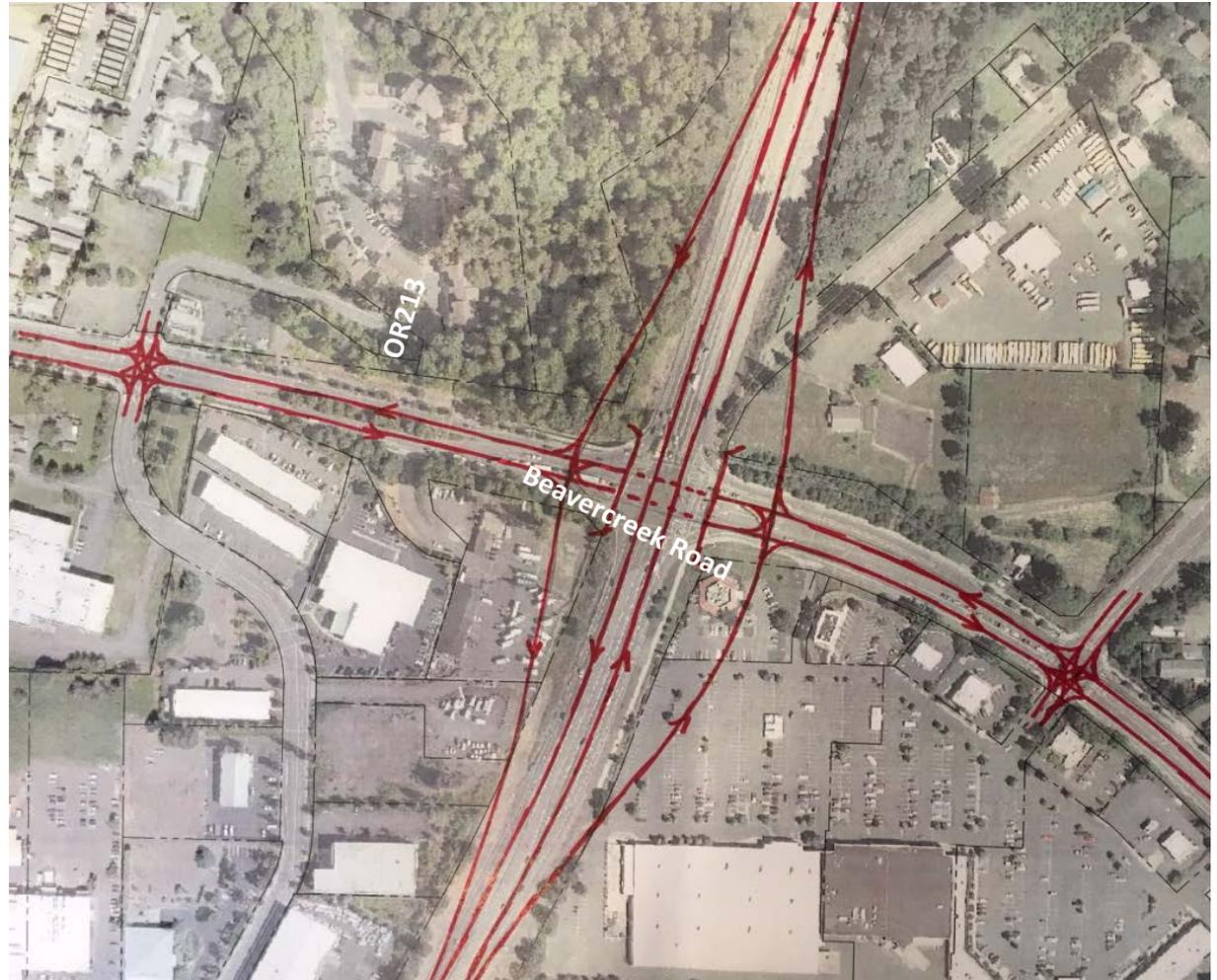
Alternative 3 - Southbound Displaced Left-Turn

- Continuous flow intersection
- Requires upstream signal
- Consider prohibiting northbound left-turns
- $v/c = 0.86$
- Impacts to culvert and retaining walls in northeast corner
- Reduces crossing distances but creates two-stage crossing
- \$5-\$10M



Alternative 5 - Full Diamond Interchange

- Ramps impact surrounding land uses
- $v/c = 0.82$
- Right-of-way impacts
- Creates two major intersections for pedestrians/bikes to navigate
- >\$25M



Alternative 7 - Single Point Interchange

- Ramps impact surrounding land uses
- $v/c = 0.80$
- Right-of-way impacts
- Creates two major intersections for pedestrians/bikes to navigate
- >\$25M

