

APPENDIX G: ALTERNATIVES ANALYSIS

Appendix A lists all the locations where needs have been considered and where potential projects have been suggested for consideration in this plan. As Chapter 8 describes, 'For each of these issues, County staff has reviewed the location and pertinent data (accident histories, traffic volumes, level of service, geometry, traffic flow characteristics, etc.) and developed the conceptual project that, in staff's judgment, best addresses the issues at that location. For each of these potential projects, a planning level cost estimate has been developed and the project evaluated to determine how it would affect traffic safety and flow in the area.'

For each of the 0 to 5 year recommended project locations, this appendix describes the thought processes involved in arriving at the conceptual project that would best address the needs at that location. Each project is listed, followed by the factors involved in the decision on the conceptual project at that location.

Arndt Road at Airport Road and Wilsonville-Hubbard Highway (OR 551)

Major capacity problems were identified at two locations: for traffic headed from the Canby area to the Portland area in the morning a) getting through the all-way-stop at Arndt Road and Airport Road, and b) turning right to head north on Wilsonville-Hubbard Hwy (Oregon 551). The capacity problems repeat, often more severely, for vehicles returning from the Portland area to the Canby area in the afternoon. There are no suitable alternate routes available, and promotion of alternative modes (transit, etc) would not alleviate the congestion problem. Several potential measures (typically adding turn lanes and signals at the intersections and/or travel lanes in between) were given preliminary consideration. The conceptual project that provides the most benefit for the dollars spent, as well as the minimum impact of the adequate solutions, is the project under construction at this location: signaling the Arndt/Airport intersection with left turn lanes in all directions; adding a second southbound to eastbound left turn lane from 551 onto Arndt, and extending that lane through Airport Road due to the short distance between intersections and traffic entering and exiting driveways for Columbia Helicopter.

Cordon Road at Pennsylvania Avenue

The need at this location was identified through field observation and by reviewing the accident history. This showed several northbound vehicles getting rear-ended and some northbound vehicles getting in accidents by trying to turn left through too small a gap in southbound traffic. Field observation corroborates this analysis. It is appropriate to maintain the availability of this left turn, because Pennsylvania Avenue is classified as a Collector. The intersection does not meet signal warrants, so a signal is not appropriate. Analysis indicated that providing a northbound left turn lane would be appropriate for this intersection, would address the identified needs, and would yield the most safety benefit per dollar spent at this location.

Cordon Road at Auburn Road

The need at this location was identified through field observation and by reviewing the accident history. During the busy times of day, it is very difficult for Auburn Road traffic to find enough of a gap in the stream of vehicles on Cordon Road to cross Cordon Road or turn left from Auburn Road onto Cordon Road. Auburn Road is classified as a Collector, so it is appropriate to maintain its mobility across Cordon Road. The intersection meets signal warrants, and a traffic signal would function appropriately at this intersection. The accident history shows that it would be beneficial to provide signal protection for Auburn Road vehicles crossing Cordon Road or turning left onto Cordon Road, and preliminary space-time calculations indicate that a signal could be installed while maintaining reasonable progression of

vehicles along Cordon Road. Analysis indicated that providing a traffic signal would be appropriate for this intersection and would address the identified needs in the most cost-effective way.

Cordon Road at Herrin Road

The need at this location was identified through field observation and by reviewing the accident history. This showed several northbound vehicles getting rear-ended and some northbound vehicles getting in accidents by trying to turn left through too small a gap in southbound traffic. Field observation corroborates this analysis. It is appropriate to maintain the availability of this left turn, because Herrin Road is classified as a Collector. The intersection does not meet signal warrants, so a signal is not appropriate. Analysis indicated that providing a northbound left turn lane would be appropriate for this intersection, would address the identified needs, and would yield the most safety benefit per dollar spent at this location. A potential project at this location would be somewhat complicated by the low creek crossing west of Cordon Road, and the grade necessary to get from this bridge up to Cordon Road. Also complicating the intersection is the slight rise of Cordon Road just north of the intersection. While the intersection meets sight distance standards, vertical realignment to smooth this rise would yield increased visibility and safety benefit.

Ehlen Road at Oregon 551 and Boones Ferry Road

The need at this location was identified through field observation and by reviewing the accident history. The intersection of Ehlen Road with Oregon 551 is signalized, and the Ehlen Road approaches to this signal are one lane in each direction. When a driver on Ehlen Road wants to turn left onto Oregon 551, they must wait for opposing traffic to clear before making this left turn. Because each approach is only one lane in each direction, through east-west traffic has difficulty getting by when a driver is waiting to turn left. Because this intersection has gotten quite busy, east-west traffic is often blocked by left-turners for much of its green time, which results in very long queues of traffic waiting to get through this intersection. In addition, the Ehlen Road intersection with Boones Ferry Road is also quite close to Oregon 551, so traffic waiting to get through the OR 551 intersection frequently blocks the Boones Ferry intersection. Left-turners at Boones Ferry also block Ehlen Road. One possible solution would be to fully reconfigure the road system of this area, but that would be quite costly and very disruptive. A left turn lane on Ehlen Road at 551 would alleviate the main issue by allowing left-turners a space to wait without blocking the through travel lanes. A left turn lane on Ehlen Road at Boones Ferry Road would alleviate another issue by also providing these left-turners a space to wait without blocking the travel lane. Because of the proximity of these two intersections, a single left turn lane extending through both intersections would provide adequate queuing space for both, and the best geometrics for through traffic on Ehlen Road. Signal modifications to include a left-turn phase for Ehlen Road traffic would also be considered.

Cordon Road at MacLeay Road

The north, south, and west legs of this intersection are in the City of Salem, with the Urban Growth Boundary running down the east right of way line, and the east leg in rural Marion County. This intersection is currently a four-way-stop. Traffic volumes on Cordon Road have grown to the point where there are significant delays on Cordon Road at this intersection. The solution here is a traffic signal, with a potential long-term realignment of the MacLeay Road approaches to square up this intersection. As the primary traffic problems at this intersection are in the City of Salem, it makes sense for the City of Salem to construct this project. It is listed here because it will have some effect on the east leg of MacLeay Road, which is in rural Marion County. The improvements to this leg of MacLeay Road will likely only consist of the addition of a left turn lane at the intersection.

Marion Road from Turner UGB to Mill Creek Road

As approved in a recent land use case, a private company will be opening a gravel mining operation southeast of Turner, and southeast of this section of road. That development will generate a significant amount of truck traffic on this road. This project, as required in that land use case, would strengthen the pavement and add paved shoulders (bikeways) on this section of road in an effort to mitigate the impact of this added truck traffic.

Jefferson-Marion Road over Union Pacific Railroad

This project would replace an existing bridge that carries Jefferson-Marion Road over the Union Pacific Railroad. Jefferson-Marion Road is classified as an Arterial, and is a key transportation corridor in this part of the County. The bridge is old, narrow, has sharp curves on the approaches, and has a low sufficiency rating. A grade crossing would not be feasible due to the volume of rail traffic on this line, the Union Pacific West Coast Mainline, and a grade crossing would likely encounter fierce opposition from Union Pacific and from the ODOT Rail Division. Funding has been approved through the Oregon Transportation Investment Act III to replace the bridge and its approaches. As the sharp curves on the approaches are a safety issue, project design has included an analysis of alternatives that would somewhat straighten the curves to allow a design speed closer to the typical travel speed on this corridor.

Mt. Angel – Gervais Road over Pudding River

Mt. Angel – Gervais Road had been a commonly used freight route, particularly for trucks carrying agricultural products into and out of the region. The condition of the bridge has deteriorated over the years, to the point where the bridge is now load limited to 20, 38, or 39 tons (depending on truck configuration). The bridge is also quite narrow, and provides no space off of the travel lanes for pedestrians to cross. Funding has been approved through the Oregon Transportation Investment Act III to replace the bridge. As the alignment of the roadway is good, the logical project is to replace the bridge at the current alignment of the roadway. An adjacent bridge across an overflow channel is also old with a poor sufficiency rating, so that bridge will be included in the project as well.

South Abiqua Road over Abiqua Creek

This project was also identified through regular bridge inspections. The bridge is old, narrow, and has a low sufficiency rating. Funding has been secured through the Hazardous Bridge Rehabilitation and Replacement program to replace the bridge. As the alignment of the roadway is good, the logical project is to replace the bridge at the current alignment of the roadway.

Marion Road over Mill Creek (south of Mill Creek Road)

This bridge is also old, narrow, and has a relatively low sufficiency rating, although its rating is not quite low enough to get grant funding for replacement. However, as approved in a recent land use case, a private company will be opening a gravel mining operation southeast of Turner, and southeast of this section of road. That development will generate a significant amount of truck traffic across this bridge, which would cause it to deteriorate quickly if no action is taken. This project, as required in that land use case, would reconstruct and widen this bridge in an effort to mitigate the impact of this added truck traffic.

Silverton Road at Howell Prairie Road

Traffic volumes on Silverton Road have grown to the point where drivers experience unacceptable delay at this all-way-stop intersection during the peak hours. This intersection is the center of the tiny community of Central Howell, and is surrounded by a school, gas station, and farmers market. Traffic volumes on Silverton Road (about 10,000 ADT) are much higher than on Howell Prairie Road (2,000

ADT). One potential solution would be to install a traffic signal at the intersection, which would also necessitate turn lanes on the Silverton Road approaches. Another possibility would be converting the intersection to a two-way-stop by removing the stop signs on Silverton Road and adding left turn lanes for east-west traffic. The traffic signal was chosen for inclusion in the RTSP because it would provide for better movement for pedestrians and local traffic related to the school and businesses in close proximity to this intersection. Additional alternatives analysis will be conducted as part of the design process before a particular alternative is chosen for detailed design.

Cordon Road at Hayesville Drive

The need at this location was identified through field observation and by reviewing the accident history. This showed several northbound vehicles getting rear-ended and some northbound vehicles getting in accidents by trying to turn left through too small a gap in southbound traffic. Field observation corroborates this analysis. It is appropriate to maintain the availability of this left turn, because Hayesville Drive is classified as a Collector. The intersection does not meet signal warrants, so a signal is not appropriate. Analysis indicated that providing a northbound left turn lane would be appropriate for this intersection, would address the identified needs, and would yield the most safety benefit per dollar spent at this location.

Brooklake Road at Wheatland Road

The need at this location was identified through field observation and by reviewing the accident history. A pattern has been observed of westbound vehicles not stopping (due to driver error) for the intersection, and going down the slope west of the intersection. This slope complicates potential solutions, as there is not much space to work with for any sort of barrier or realignment. The project included in the RTSP is for warning devices (possibly innovative solutions) that would sense a westbound vehicle and alert it to the presence of the intersection.

Bridges With Low Sufficiency Ratings

As bridges are regularly inspected, bridges are occasionally identified as suitable for rehabilitation or replacement, particularly bridges with low sufficiency ratings. Marion County has been successful in the past in obtaining grant funding to replace old and worn out bridges. When this funding is obtained, the County is typically required to contribute a 'match' of a certain percentage of local funds to pay for this project. This money is set aside to provide matching funds for bridge replacement projects identified and constructed with grant funding.