APPENDIX A

PMT Meetings Summaries

PMT Meeting 1: OR 22(W) Expressway Management Plan

ATTENDEES:

Austin McGuigan, Polk County
Aaron Geisler, Polk County
Mark Becktel, City of Salem
Kelly Amador, ODOT
Dan Fricke, ODOT
Rod Thompson, ODOT
John Lucas, ODOT
Stephen Wilson, ODOT
Jamie Hollenbeak ODOT
Dorothy Upton, ODOT
Haregu Nemariam, CH2M HILL
Kent R. Belleque, ODOT
Sumi Malik, CH2M HILL
Matt Hughart, Kittelson & Assoc.
Brian Ray, Kittelson & Assoc.
Mike Jaffe, Mid-Willamette Valley COG
Dick Reynolds, ODOT
Larry Weymouth, CH2M HILL

FROM: Sumi Malik/CH2M HILL
Larry Weymouth/CH2M HILL

DATE: March 15, 2007

Meeting Date: March 6, 2007

Purpose of Meeting

The purpose of the first meeting is to reconstruct history of previous planning efforts, obtain guidance on where the project team needs to go and to develop resources for the consultant team.

Many attendees have worked on project before:

Aaron Geisler
Mark Becktel
Kelly Amador
Dan Fricke
Dorothy Upton
Kent Belleque
Mike Jaffe

Project Background

The consultant team will validate previous analysis, alternatives, and make changes as necessary. Thus far, traffic counts have been requested. Those who have worked on the project before were asked to share about previous efforts and their thoughts on the project going forward.

Aaron – Board of Commissioners is interested in OR-22. Issues facing the project are access points, creating an interchange to access Independence, and moving the project towards construction.

Mark – the project needs to be integrated with plans eastward to the bridges; the existing at-grade intersections, for example at College, need to be made better; and there is interest in

an interchange at Eola Drive and closing Rosemont; in the past ODOT has had difficulty with siting an interchange at Eola Drive.

Kelly – Public open house participation

Dan Fricke – the project has had a long history. Originally ODOT tried to do the project with all in-house resources, but the plan couldn't be finalized. The region is committed to finishing the process.

Dorothy – she looked at area when working on the Rickreal Interchange. Thanh Nguyen did most of the previous analysis on OR 22, and Dorothy updated it in 2006.

Kent – he thought the project extent should be Greenwood to Doaks Ferry. His office has been supportive, and has provided resources and support.

Mike Jaffe – the project has been assigned to various people at the MPO. They have maintained a stakeholders list. Mark did land use modeling work with Dorothy. SKATS' interest is in the OR 22/51 interchange. They want it to go into RTSP, which must show fiscal constraint. SKATS would like OR 22/51 of the project to be an "included" project. Oak Grove Road on the west side is the MPO boundary.

Polk County has the most current aerial which is from June 2004.

Previous alternatives development assumed a design year of 2025. The current planning effort will use a design year of 2030.

OR 22/51

Reviewing previously developed alternatives, Option 1, for OR-51 was the best interchange option in terms of how it served traffic; the WB-SB movement has the heaviest traffic.

Option 2, OR 51 had no connection to Doaks Ferry Road. Previous efforts looked at many options for Doaks Ferry Road, but couldn't make it work. Previous alternatives tried to use existing County roads as much as possible. A weigh station and RV park access on the south side are difficult to connect using a frontage road due to topography.

For the OR 22/51 intersection an at-grade solution that met Highway Design Manual (HDM) standards could not be found. Grade separation is needed for safety.

Doaks Ferry Road

It is likely, due to topographic constraints, that Doaks Ferry Road will be left alone and at the most would be made right-in/right-out only for safety reasons.

The State park, which was the site of a weigh station, is a constraint because it is a section 4f resource.

Greenwood Road

Five options were developed for Greenwood Road: leave as is; closed to right-in and right-out only; build an overpass; build an overpass with eastbound access limited to right-in and right-out only, and farmers wanted a full interchange, but volumes do not warrant, nor does

the crash history support a full interchange. Sight distances are okay at the intersection and there is a half mile gap in the median divider. Farmers' desire to get farm equipment across the highway is the greatest concern. All options except for closing the intersection are okay to move forward.

Access drives

A fruit stand has two deeded accesses on OR 22. Hanson concrete pipe place has a deeded access because their yard was split by the highway. Eola Florist has two deeded accesses; however the flower shop is now closed. On the north side of OR 22, most accesses are off of County roads. Private accesses are mostly east of 51, in unincorporated areas of Eola.

Land Use

There has not been much development along OR 22 in the past few years. Eola is now connected to 55th and homes have been development off of 55th. At Aster and 55th the land owner has planted a vineyard and has plans to construct a winery.

Residential land uses have grown on Doaks Ferry Road and Eola Drive, with more homes, apartments, and lots of duplexes. The City is improving S of Eola Drive, making Eola property owners willing to give up property for right-of-way (ROW), which may enable the closing of Doaks Ferry Road access to OR 22 and an interchange could be built at College Drive instead. Significant land use changes are north of the study area, and previously developed alternatives are still valid and do not impact the new developments.

Previous Traffic Counts

Based on previous traffic counts, no left turns were made during the PM peak. Left turns were only observed during the non-peak hours. Drivers have modified their driving behavior recognizing that turning left on OR 22 during the peak is a safety risk.

Eola Drive and 55th are now connected which brings more traffic.

Project Statement & Goals

The existing project statement and goals are four years old. The consultant team will revise the project statement and goals and ask for PMT feedback and revisions. The project statement and goals do not need to be a National Environmental Policy Act (NEPA) purpose and need statement.

Goals

Previous goals relate to the refinement plan. This project is an Expressway Management Plan (EMP) which is new and less defined than an Interchange Area Management Plan (IAMP).

Project Overview

We are looking forward to the next phase, an Environmental Assessment (EA) and an IAMP.

The alternatives will have planning level cost estimates. No formal decision document from previous planning efforts exists. The best available information is from a Public decision meeting – the decision document is very rough and mostly has comments.

Public and Stakeholder Involvement

Stakeholders were on board at the drop off point. Updating on the alternatives, evaluation, and soliciting feedback on preferred alternative needs to be done.

Responsibilities of the PMT (TAC)

The PMT will also act as a Technical Advisory Committee (TAC). The PMT will likely have a role at the stakeholder meeting, and will be included to answer questions. The PMT will recommend one or more alternatives to forward to IAMP/EA process. Floating meetings poses a problem for most, and a standing meeting is easier to schedule around.

The existing evaluation framework could be improved. The consultant team will revise the evaluation criteria, suggested a new structure. The existing criteria use consumer report style measures, and the consultant team is not sure if this is the best approach.

Process Goals & Change Management

The PMT needs a plan for change management. If the PMT sees problem or concern, let Dan and/or Larry know so they may develop a plan to address it and to share at the next PMT meeting.

The EMP process goals relate to Statement of Work. The Environmental constraints map is to raise any red flags with respect to environmental permitting, access management, land use actions and other constraints mapping.

The County is to give information for local plan amendments and Comprehensive Plan changes made with the Rickreal Interchange. The Comprehensive Plan had findings that made land use permitting smooth.

If the press asks any questions, please refer them to ODOT's Public Information Officer, Lou Thomas.

The eastern boundary includes Doaks Ferry Road; however, possible solutions can extend to College Drive. Traffic counts for College Drive will also be collected.

Polk County has the most recent aerial (2004). Polk County has an inventory of land use, building size. Dean Anderson is the GIS contact. Aaron can obtain board approval for the data to be shared.

Kittelson and Associates wrote a traffic impact analysis (TIA) for a gravel pit at OR 22/51, J.C. Compton, River Bend Sand & Gravel. Wally Lean was the attorney. ODOT approved a conditional use permit for large parties for Rancho Nuevo. An access permit may be issued on event by event basis. A subdivision was built on 55th and a TIA was done at that time (2003) for 55th Street and OR 22, which may be helpful.

There is an automated traffic recorder station on OR 22 by the pedestrian bridge west of OR 51.

Project Boundaries

Greenwood Road is the west terminus, or more specifically a quarter mile west of Greenwood Road to the railroad overpass where the Rickreal IAMP study area ended. The cemetery, golf course and Brunk House (section 4F) are sensitive areas.

The eastern terminus of the study area is at College Drive, but project solutions will be considered only as far as Doaks Ferry Road.

ODOT does not want an interchange at College Drive right now, but will look into the possibility in the future. Polk County is interested and expects pressure from growth there in future.

Ideally an interchange would be sited at the Eola arterial and not Rosewood.

Next Steps

Review the problem statement/purpose and need, analysis methodology and draft evaluation criteria. Set a regular meeting time. The best time is the 3rd Tuesday of the month, 1:30 to 4:00 PM.

Also get an ODOT right-of-way representative for the PMT.

PMT Meeting 2: OR 22(W) Expressway Management Plan

ATTENDEES:

Austin McGuigan, Polk County
Aaron Geisler, Polk County
Kelly Amador, ODOT
Dan Fricke, ODOT
Rod Thompson, ODOT
John Lucas, ODOT
Stephen Wilson, ODOT
Jamie Hollenbeak ODOT
Dorothy Upton, ODOT
Haregu Nemariam, CH2M HILL
Kent R. Belleque, ODOT
Dave Warrick, ODOT
Matt Hughart, Kittelson & Assoc.
Thanh Nguyen, ODOT
Ray Jackson, MWVCOG
Julie Warnecke. City of Salem
Larry Weymouth, CH2M HILL

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Mark Becktel, City of Salem
Dick Reynolds, ODOT
Roxanne Hanneman, ODOT
Sumi Malik, CH2M HILL
Mike Jaffe, Mid-Willamette Valley COG

FROM: Larry Weymouth, CH2M HILL

DATE: March 15, 2010

Meeting Date: April 17, 2007

Purpose of Meeting

The purpose of this meeting was to review the revised draft problem statement, collect information about OR 22/51 alternatives development history, review revised draft evaluation criteria, report on project progress, discuss stakeholder involvement plans, and raise change management issues. Handouts were provided to support agenda topics.

Draft Problem Statement

Comments included adding references under EMP goals to meeting applicable design and mobility standards of the Highway Design Manual.

Additional written comments are to be submitted to Dan Fricke by May 1st.

OR 22/51 Alternatives Development History

The consultant team needs to have a list of the interchange forms already considered, and the rationale for screening/evaluation (if available). Dan still has a few more places to look

to find the drawings used in previous public involvement efforts. Dave Warrick, Dorothy Upton, Thanh Nguyen, and Kent Belleque will look to see what they can find, too.

Evaluation Criteria

Discussion centered on providing a range of quantifiable measures for each level of effectiveness for each criterion, as appropriate. The criteria will be most effective in revealing differences among the alternatives if ratings do not include absolutes that few if any alternatives could meet (e.g., all standards are met; no displacements).

The Mobility criterion should address the HDM and County Road Standards.

The Connectivity criterion should de-emphasize local trips. Quantify system travel time and mainline travel time.

The Phasing criterion should include being fundable. Cost must address the financial constraint requirement (identify a reasonably foreseeable funding source). Include the SKATS plan in Plan Consistency criterion.

Transportation Operations Report

Table 3 (handout) provides the unsignalized intersection analysis results and those intersections exceeding the 0.80 mobility standard. Results of Table 4 (handout) are based on SKATS model, ODOT future volumes tables data base, growth rate for 2030 conditions. Volumes are higher than what ODOT's previous effort showed because the latest data are 5 years since then; however, conclusions remain consistent with previous data. There is a need for a 6-lane section. The prudent action would plan to accommodate six lanes if not build them in the foreseeable future.

Crash Analysis Report

Severity and type of crashes (handout) was based on two OR 22 segments and one quarter-mile segment of OR 51. It was decided to also gather data for the most western portion of OR 22, Derry Oxing to Greenwood Road, in the study area. A check of the crash-rate calculations after the meeting revealed that the actual crash rates are:
MP 18.61-21.19 69 crashes; 2.58 mile section; ADT = 29,000; yields a 0.50 crashes per MVM
MP 21.19-22.15 38 crashes; 0.96 mile section; ADT = 35,900; yields a 0.60 crashes per MVM
The comparable statewide rates for Other Freeways/Expressways for 2001-2005 ranged from 0.76-0.87 with a 5 year average of 0.80. Therefore these sections are lower than comparable sections of other state highways.

Environmental and Land Use Constraints

GIS maps depicting exisiting land use and zoning have been produced to date.

Stakeholder Involvement

The scope and schedule calls for ODOt to re-engage the stakeholders in April/May, looking toward an open house in mid-June, when alternatives will be presented. Primary contacts will be with the Farm Bureau and the Polk County Committee for Citizen Involvement (Austin to give contact info to Dan). Another group to involve would be the West Salem Neighborhood Association.

Change Management

Need to add a representative from ODOT ROW to PMT (Roxanne Hanneman). Distribute meeting handouts as file attachments, when possible, to PMT meeting announcement/agenda.

Next Steps

Review the problem statement and draft evaluation criteria and send comments to Dan Fricke by May 1st. Next meeting will focus on approving those documents, reviewing the applicable plans and policies tech memo, reviewing the analysis and refinement of alternatives, and making plans for the open house. Meeting date is May 15th, 1:30 to 4:00 p.m. at ODOT Region 2 Planning, Rm. 116.

PMT Meeting 3: OR 22(W) Expressway Management Plan

ATTENDEES:

Austin McGuigan, Polk County
Aaron Geisler, Polk County
Dan Fricke, ODOT
Rod Thompson, ODOT
Dick Reynolds, ODOT
Roxanne Hanneman, ODOT
Jamie Hollenbeak ODOT
Kent R. Belleque, ODOT
Dave Warrick, ODOT
Thanh Nguyen, ODOT
Kathi McConnell, ODOT R2
Anthony Boesen, FHWA
Ray Jackson, MWVCOG/SKATS
Julie Warncke, City of Salem
Sumi Malik, CH2M HILL
Larry Weymouth, CH2M HILL
Matt Hughart, Kittelson & Assoc

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Stephen Wilson, ODOT
Dorothy Upton, ODOT
Kelly Amador, ODOT
Mike Jaffe, MWVCOG
Haregu Nemariam, CH2M HILL

FROM: Larry Weymouth, CH2M HILL

DATE: March 15, 2010

Meeting Date: May 15, 2007

Purpose of Meeting

The purpose of this meeting was to review/comment on the final Problem Statement, final Evaluation Criteria, Environmental Constraints tech memo, Plans and Policies Review tech memo, and Traffic Operations tech memo. The meeting also included a discussion of previously identified and newly proposed alternatives, stakeholder involvement plans, and change management issues.

Document Review/Comment

Some participants had difficulty downloading documents from ODOT's ftp web site. Dan will e-mail files to those that need them. Additional figures to accompany the environmental constraints report will be coming from the consultants.

The Problem Statement will be revised to insert "statewide" before "expressway" and insert "and freight route" afterwards. Mobility of the Evaluation Criteria will be revised to read: "Relevant ODOT OHP mobility standards are….." And add, "Relevant ODOT HDM mobility standards for the expressway are 0.60 outside the MPO and 0.75 inside the MPO."

The Environmental Constraints and Plans and Policies Review tech memos need to mention the Willamette River Greenway Plan and show boundary on the map. Parcels in the greenway are already developed.

Additional written comments on Transportation Operations and Plans/Policies Revie are to be submitted to Dan Fricke by June 1st.

Previous Alternatives and New Ideas

Dan gave an overview of the previous alternatives. There is a working document he and Larry are preparing as a summary. The alternatives will be for Greenwood Road intersection, OR 22/51, OR 22 access and frontage/backage roads, and Doaks Ferry Road intersection. Figures of the previous alternatives were reconstructed by Kent Belleque, and copies were distributed. The EMP will need to include an access management plan. Dan will identify the interchange forms previously considered, and provide a brief rationale for screening.

A consensus was acknowledged that an all-PMT evaluation of alternatives would be cumbersome, and an intial evaluation would be performed by Dan and the consultant team. The next PMT meeting will be for input on their draft evaluation of alternatives.

Stakeholder Involvement/Change Management

Stakeholders will be re-engaged in the process by Dan. An Open House will be held in late June (instead of May) after the next PMT meeting to review the evaluation criteria and alternatives.

Next Steps

Review the Environmental Constraints and Plans/Policies Review tech memos and send comments to Dan Fricke by June 1st. Next meeting will focus alternatives evaluation and preparations for an Open House. The nest PMT meeting date is the regularly scheduled third Tuesday of the month: June 19th, 1:30 to 4:00 p.m. at ODOT Region 2 Planning, Rm. 116.

PMT Meeting 4: OR 22(W) Expressway Management Plan

ATTENDEES:

John Lucas, ODOT
Dan Fricke, ODOT
Rod Thompson, ODOT
Dick Reynolds, ODOT
Roxanne Hanneman, ODOT
Dave Warrick, ODOT
Kelly Amador, ODOT
Thanh Nguyen, ODOT
Ray Jackson, MWVCOG/SKATS
Jerry Sorte, Polk County
Dave Battz, City of Salem
Larry Weymouth, CH2M HILL
Matt Hughart, Kittelson & Assoc

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Dorothy Upton, ODOT
Jamie Hollenbeak ODOT
Kent R. Belleque, ODOT
Mike Jaffe, MWVCOG
Haregu Nemariam, CH2M HILL
Sumi Malik, CH2M HILL

FROM: Larry Weymouth, CH2M HILL

DATE: March 15, 2010

Meeting Date: June 19, 2007

Purpose of Meeting

The purpose of this meeting was to review/comment on the draft Previous Public Involvement Timeline, draft EMP Outline, draft Alternatives Evaluation Matrix, and draft Preliminary Recommendations. The meeting also included a discussion of progress to date, stakeholder involvement plans and change management issues.

Progress Report

Last call for revisions to previously discussed/reviewed technical memoranda: Purpose and Need, Environmental Constraints, Traffic Operations, and Plans, Policies, and Standards.

CAD single-line diagrams of the interchange alternatives and frontage/backage roads alternatives on top of aerials are being drawn. Ready around the Fourth.

Document Review/Comment

Written comments on the following documents are due in 2 weeks to Dan Fricke.

No revisions to the Previous Public Involvement Timeline.

The draft EMP Outline indicated that the EMP will contain chapters typical of a facility plan; very similar to the Rickreall Junction Transportation Facility Plan. Dick Reynolds noted that Chapter 8, Next Steps, should include a schedule/timeline for future activities. Dan will send the electronic file to the PMT.

Discussion of the draft Alternatives Evaluation Matrix was largely focused on business access and impacts. Several evaluation criteria (i.e., connectivity, businesss, built environment) relate in various degrees to the viability of existing businesses along the highway frontage. Some tweaks to wording of the evaluation criteria might be needed. Additional notes in the matrix are needed to clarify ratings for the "Business" criterion. It would be helpful to list under the criteria a summary of the performance measures and impacts considered. The frontage/backage roads evaluation was simplified to the quadrants and focused on phasing, as there was little differentiation between alternatives/elements within each quadrant. However, the NE quadrant will receive further evaluation comparing existing and new roads use, and business and residential access.

Specific changes to be made to the matrix include:

- DFR-6: Mobility, change to empty circle, because the intersection is very near the mobility standard now.
- DFR-2: Connectivity, add "and businesses" to note.
- DFR-6: Connectivity, add "Better than DFR-5" to note
- INH-5: Change description to "Single Quadrant Parclo B Interchange"
- INH-6: Change description to "Parclo B Interchange"

Matt Hughart passed around a handout that presented findings of the interchange alternatives operations analysis. The PARCLO "B" (two loop ramps in the northwest and southeast quadrants—INH-6) will accommodate the projected 2030 volumes the best under unsignalized ramp terminals when access to/from OR 22 / Doaks Ferry Road is restricted. If the ramp terminals are signalized, then any of the interchange configurations will function at or at least close to the 0.70 mobility standard (depending upon lane configurations). If access to/from OR 22 / Doaks Ferry Road is <u>not</u> restricted, then the Single Quadrant PARCLO "B" (loop ramp in the northwest quadrant—INH-5) will function the best under unsignalized ramp terminal conditions. Overall, the findings don't differ much from the previous ODOT analysis; 2030 projected volumes are a little higher, partly related to the additional 5 years on the plan's horizon year, and the Doaks Ferry Road volumes are higher. Thanh noted there was a turning volume that seemed inconsistent, which wouldn't change the conclusions, but Matt will double check to see if a number was copied wrong.

Discussion of the Draft Preliminary Recommendation was put in the context of getting ready for the stakeholder meeting next month. This document will be revised per comments received from the PMT during the next two weeks, reviewed again at the next PMT meeting, and then presented at the Open House for public comment. Suggested revisions included beginning the document with an introduction that sets the overall context (purpose and need) for the EMP, and beginning each recommendation with a topical

heading; for example, "1. Mobility and Safety." Recommendation #4 should address access rather than economy in the first line. OK to discuss providing alternate access for businesses. Need to get list of Permitted/Unpermitted Accesses. Recommendation #5, regarding left-in and left-out barrier options at Doaks Ferry Road, will receive more study by ODOT (Dave Warrick and John Lucas) and reported on at next PMT meeting. Recommendation #8 should note that many of the proposed improvements would be in the MPO.

Change Management

Dave Battz will be attending PMT meetings as the City of Salem representative instead of Julie Warncke. Some PMT members now hava a scheduling conflict with another project's meetings that are scheduled to begin at 3 pm. We will try to set the agenda so we can adjourn by 3 pm in the future.

Next Steps

Review the documents (above) and send comments to Dan Fricke by July 6. Next meeting will focus on redrafts and decisions regarding the alternatives evaluation matrix, preliminary recommendations, and preparations for the Open House. The next PMT meeting date is the regularly scheduled third Tuesday of the month: July 17th, 1:30 to 3:00 p.m. (target adjournment) at ODOT Region 2 Planning, Rm. 116.

PMT Meeting 5: OR 22(W) Expressway Management Plan

ATTENDEES:

Dan Fricke, ODOT R2 Planning
Rod Thompson, ODOT R2 Env
Austin McGuigan, Polk County
Aaron Geisler, Polk County
Rox Hanneman, ODOT R/W
Dave Warrick, ODOT Tech Serv
Jamie Hollenbeak ODOT R2 Acc
Chris Bailey, ODOT Roadway
Thanh Nguyen, ODOT TPAU
Ray Jackson, MWVCOG/SKATS
Anthony Boesen, FHWA
Dave Battz, City of Salem
Larry Weymouth, CH2M HILL
Matt Hughart, Kittelson & Assoc

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Jerry Sorte, Polk County
Dick Reynolds, ODOT
John Lucas, ODOT
Kent R. Belleque, ODOT
Kelly Amador, ODOT
Mike Jaffe, MWVCOG
Haregu Nemariam, CH2M HILL
Sumi Malik, CH2M HILL

FROM: Larry Weymouth, CH2M HILL

DATE: March 15, 2010

Meeting Date: July 17, 2007

Purpose of Meeting

The purpose of this meeting was to review/comment on the alternatives evaluation matrix and alternatives single-line drawings and discuss upcoming public involvement. The meeting also included a progress update and related activities. Time expired before change management issues could be raised, if any.

Progress Report and Related Activities

The Holman State Wayside is OPRD property; it is being considered for closure and perhaps disposition. This could alleviate any future 4(f) issues if the property were sold or exchanged/transferred to ODOT. Work has begun on drafting chapters of the plan.

Document Review/Comment

Written comments (again) on the following documents are due in 2 weeks to Dan Fricke. Not many comments were received this past month.

The draft Alternatives Evaluation Matrix was revised to include a list of features and performance measures. Some minor formatting errors will be corrected in the final version. A new Greenwood Road alternative, GWR-6 Offset Dual "T" Intersections was added. Concerns were raised that the GWR-6 alternative would not be feasible for farm equipment without some lane widening and fairly immediate access to the turn lane refuge. This would provide some improved safety if the overcrossing alternative were not soon funded for construction. A similar concept from the HDM (p. 9-63)was presented by Chris Bailey for a non-freeway interchange example (Figure 9-29).

Matt Hughart passed around a handout that presented findings of the interchange alternatives operations analysis. The PARCLO "B" (two loop ramps in the northwest and southeast quadrants—INH-6) will accommodate the projected 2030 volumes the best under unsignalized ramp terminals when access to/from OR 22 / Doaks Ferry Road is restricted. If the ramp terminals are signalized, then any of the interchange configurations will function at or at least close to the 0.70 mobility standard (depending upon lane configurations). If access to/from OR 22 / Doaks Ferry Road is <u>not</u> restricted, then the Single Quadrant PARCLO "B" (loop ramp in the northwest quadrant—INH-5) will function the best under unsignalized ramp terminal conditions.

There was further discussion about connectivity issues associated with closing access to OR 22 from Doaks Ferry Road. DFR is a major arterial. If not there, then perhaps a connection farther east near College Drive is needed. Drivers on DFR could be inconvenienced by shunting traffic west to the proposed interchange on a new road.

Discussion shifted to the color-coded drawing of the frontage/backage road alternatives. The backage road (dark and light blue) is a better alternative than the frontage road (purple) in the NE quadrant. Parts of the backage road could follow an old right-of-way. If OR 22 were widened as proposed, there would be inadequate R/W for the frontage road and multiuse path. It was noted that the backage road would likely be needed as a detour during construction of the interchange; if extended east to DFR, it would be an alternative for west Salem traffic.

The dark blue backage road (NE) would cut through recently constructed houses that don't show on the aerial, and in the NW through the middle of the filbert orchard on an existing private farm dirt road. It also would come out too close by standards to the ramp end. The land owner has shown some receptivity in the past to the purple backage road even though it would sever existing vineyard trellising, whereas the light blue road would not.

In the SE quadrant, the light blue alternative would go through a blueberry orchard, whereas the purple alternative woud follow existing McNary Road until meeting up with Rickreall Creek and the old railroad right of way.

Access permits need to be researched. This is something Dan will do or perhaps the consultant could if the work order were amended. The plan will include an access management plan. The long-term goal is to close all direct private access to the expressway. Policy would be to not eliminate access until an alternative access was made available.

It was decided to resurrect consideration of the feasibility/constructability of the DFR flyover alternative, considering the possible acquisition of land now set aside for the Holman State Wayside.

Change Management

No time. Adjourned before addressing.

Next Steps

Review the documents (above) and send comments to Dan Fricke by August 3. Next meeting will focus on decisions regarding the alternatives, review of draft plan chapters, and preparations for the Open House in September. The next PMT meeting date is the regularly scheduled third Tuesday of the month: August 21st, 1:30 to 3:00 p.m. (target adjournment) at ODOT Region 2 Planning, Rm. 116.

PMT Meeting 6: OR 22(W) Expressway Management Plan

ATTENDEES:

Dan Fricke, ODOT R2 Planning
Rod Thompson, ODOT R2 Env
Austin McGuigan, Polk County
Aaron Geisler, Polk County
Dave Warrick, ODOT Tech Serv
Jamie Hollenbeak ODOT R2 Acc
Dick Reynolds, ODOT
Thanh Nguyen, ODOT TPAU
John Lucas, ODOT
Dave Baltz, City of Salem
Larry Weymouth, CH2M HILL
Matt Hughart, Kittelson & Assoc

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Julie Warncke, City of Salem
Ray Jackson, MWVCOG/SKATS
Stephen Wilson, ODOT
Kathi McConnell, ODOT R2
Dorothy Upton, ODOT
Jerry Sorte, Polk County
Anthony Boesen, FHWA
Chris Bailey, ODOT Roadway
Rox Hanneman, ODOT R/W
Kent R. Belleque, ODOT
Kelly Amador, ODOT
Mike Jaffe, MWVCOG
Haregu Nemariam, CH2M HILL
Sumi Malik, CH2M HILL

FROM: Larry Weymouth, CH2M HILL

DATE: March 15, 2010

Meeting Date: August 21, 2007

Purpose of Meeting

The purpose of this meeting was to review/comment on previous plans for access management, current alternatives for the intersections and frontage/backage roads, draft recommendations, other chapters of the draft plan, and make plans for the open house. The meeting also included a progress update and related activities. Time expired before change management issues could be raised, if any.

Progress Report and Related Activities

Dan Fricke and Aaron Geisler made a presentation to the Polk County Commissioners (sans Commissioner Mike Probst, who was ill) on August 14th at 9 a.m. regarding progress on the plan. Copies of the drawings of alternatives were given to the commissioners and reviewed by Dan.

Document Review/Comment

Access Management Plan: Figures 7-1 and 7-2. These drawings are based on a field survey done by Dan Fricke and others back in 2001. What is shown is a short-term closure plan. However, as relevant for the current plan, access closures would be medium-term and after the frontage/backage roads were constructed. The long-term plan would be to close all private accesses to the expressway, unless and perhaps access could not be provided.

Dick Reynolds commented that whatever this plan proposes, it should be concrete, with definite actions, clarity about the sequence of events, and local commitments being made.

In Appendix L, the tble should be renumbered L-1 (not 6-1).

Alternative GWR-6 needs to accommodate farm vehicles if it is to be feasible. However, for safety, there's no beating the overcrossing if it can be funded. If the median is closed, so there is only right-in/right-out, drivers will adjust to a longer trip accessing the future proposed Independence Highway or Rickreall interchange to get to where they need to go. If that were done short-term, the long-term solution of an overcrossing may not be necessary later.

The NE-4 f/b road alternative should be dismissed because of it joins 55th St. opposite the end ramps. ODOT regulations do not allow that configuration because of the danger of wrong way entry onto the ramps by impaired drivers. Moving the intersection farther north would require use of 55th St. as a frontage road to the overpass and moving the interchange into the orchard more. The prevalent direction of travel is likely to be to/from the north hills residential areas, according to Aaron Geisler. The house near the corner of 55th St. and the highway may need to be taken for the interchange, so providing access to it is probably not an issue. The frontage road (labeled NE-1 on the drawing adjacent to the highway) would be taken when the highway is widened. Should renumber these alternatives differently (suggest NE-5 and NE-6). The little stub roads off of the SE backage roads should be deleted—add note that exact location will be determined later in cooperation with landowners. SE-2 would have to be a viaduct because of the change in elevation.

Dave Baltz mentioined that the City's is opposed to closing the Doaks Ferry Road approach to OR 22, even with a backage road connection to the interchange (DFR-2). A left-in is needed as well as a right-in/right out. Dave Warrick and John Lucas said visibility would be impaired by the barriers needed for DFR-6, the channelization alternative allowing a left-in. They suggested perhaps DFR-6 would work better if the access point were moved farther west, around the curve to the upland and straight stretch of highway, using the new backage road for an extension of Doaks Ferry Road. ODOT also will look again at the possibility of flyover ramps for OR 22 eastbound off/on traffic at the location. A better long-term solution might be to plan for an interchange in the vicinity of College Drive and make a connection to Doaks Ferry Road. ODOT also has some previously prepared conceptual plans for an interchange there. These drawings will be retrieved by ODOT and Dan will send them to the city and county. Discussion about the alternatives and possible new ones continued for the remainder of the meeting.

The PMT needs to decide on the Doaks Ferry Road and other recommended intersection alternatives and access controls at the next PMT meeting. Therefore, the Open House will be

postponed for a month. A draft Open House meeting announcement was distributed for comment at the next meeting.

Written comments on the draft EMP chapters are due in 2 weeks (Sept. 7) to Dan Fricke. Not many comments were received so far, as the files were just distributed late Friday.

Change Management

No time. Adjourned late at 3:45 p.m.before addressing.

Next Steps

Review the documents (above) and send comments to Dan Fricke by Sept. 7. Next meeting will focus on selecting a preferred alternative, review of draft plan chapters, and preparations for the Open House in October. The next PMT meeting date is the regularly scheduled third Tuesday of the month: September 18th, 1:30 to 3:00 p.m. (target adjournment) at ODOT Region 2 Planning, Rm. 116.

PMT Meeting 7: OR 22(W) Expressway Management Plan

ATTENDEES:

Dan Fricke, ODOT R2 Planning
Austin McGuigan, Polk County
Aaron Geisler, Polk County
Dave Warrick, ODOT Tech Serv
Jamie Hollenbeak ODOT R2 Acc
Anthony Boesen, FHWA
Mike Jaffe, MWVCOG
Kelly Amador, ODOT
Kathi McConnell, ODOT R2
Dick Reynolds, ODOT
John Lucas, ODOT
Dave Baltz, City of Salem
Larry Weymouth, CH2M HILL

COPIES:

Brian Ray, Kittelson & Assoc.
Mark Becktel, City of Salem
Julie Warncke, City of Salem
Ray Jackson, MWVCOG/SKATS
Stephen Wilson, ODOT
Dorothy Upton, ODOT
Jerry Sorte, Polk County
Rod Thompson, ODOT R2 Env
Chris Bailey, ODOT Roadway
Rox Hanneman, ODOT R/W
Kent R. Belleque, ODOT
Thanh Nguyen, ODOT TPAU
Matt Hughart, Kittelson & Assoc
Haregu Nemariam, CH2M HILL
Sumi Malik, CH2M HILL

FROM: Larry Weymouth, CH2M HILL

DATE: March 15, 2010

Meeting Date: September 18, 2007

Purpose of Meeting

The purpose of this meeting was to discuss closure and acquisition options for access management, alternatives and recommendations for the intersections and frontage/backage roads, the draft plan, and make plans for the open house. The meeting also included a progress update and related activities. Time expired before change management issues could be raised, if any.

Progress Report and Related Activities

Dan Fricke reported he had a conversation with Bob Cortright/DLCD regarding land use issues. Bob thought some of the TPR issues had received short-shrift. Dan explained that more details and analysis would be included in the IAMP, as the EMP was not intended to provide land use findings. Dan will review the draft EMP to see if some additions would be appropriate.

Alternatives Comments

Greenwood Road: There is not much support in ODOT for the offset dual T alternative because of the design issues associated with accommodating farm equipment. ODOT's consensus is to dismiss it at this point. In the future, when increased traffic flow causes safety problems and there are no funds available to construct the overpass, this would leave few options but to close the intersection entirely or restrict movements to RI/RO. This would require significant out of direction travel via the Rickreall interchange.

Independence Hwy: The analysis indicated a grade separation is needed. Ramp performance depends on what happens at Doaks Ferry Road (access closed so all traffic must use interchange, or access remains).

Frontage/Backage Roads: NE-1 (frontage) is not feasible if the highway eventually is to be widened. NE-2 (backage) is preferred. Using the existing county roads, such as Aster, is favored. NW-1 would be the most direct route, although NW-2 also would work. SE-1 (McNary Road) is preferred over SE-2 because of no blueberry farm impacts. However, SE-1 is not very cost effective. A connection between the north and south sides would be good (tunnel) and an access to the expressway around 50th Avenue would provide more direct travel.

Doaks Ferry Road: Polk County and the City of Salem met to discuss the alternatives. Entirely closing DFR is not acceptable. Prohibiting/preventing the left-out movement is acceptable. ODOT presented a new alternative using Mill Street as a relocated access connected to the proposed backage road (NE-2) and then to DFR. Dave Baltz would like to have a drawing of this. Long-term the preferred solution for the city-county is a new connection (interchange) between the BPA station and College Drive. An interchange at DFR is not feasible due to topographic constraints. At either location, there could be geotechnical issues to deal with.

As the PMT lacked consensus on some alternative, the Open House will be postponed. Scheduling should be such so as not to conflict with the Salem River Crossing public meetings coming up (dates to be determined).

Written comments on the draft EMP chapters are due by the end of the month to Dan Fricke. Not many comments have been received so far.

Change Management

Larry Weymouth will be on vacation for two weeks in October 1-12.

Next Steps

Next meeting will focus on getting consensus on favored alternatives and preparing for the Open House in late October. The next PMT meeting date is the regularly scheduled third Tuesday of the month: October 16th, 1:30 to 3:00 p.m. (target adjournment) at ODOT Region 2 Planning, Rm. 116.

PMT Meeting 8: OR 22(W) Expressway Management Plan

ATTENDEES:

Dan Fricke, ODOT R2 Planning
Austin McGuigan, Polk County
Darrel James, ODOT R2
Dave Warrick, ODOT Tech Serv
Anthony Boesen, FHWA
Mike Jaffe, MWVCOG
Rod Thompson, ODOT R2 Env
Thanh Nguyen, ODOT TPAU
Kelly Amador, ODOT
Kathi McConnell, ODOT R2
Dick Reynolds, ODOT
Brent McCall, ODOT
Dave Baltz, City of Salem
Larry Weymouth, CH2M HILL

COPIES:

Brian Ray, Kittelson & Assoc.
Mark Becktel, City of Salem
Julie Warncke, City of Salem
Ray Jackson, MWVCOG/SKATS
Stephen Wilson, ODOT
Dorothy Upton, ODOT
Jerry Sorte, Polk County
Chris Bailey, ODOT Roadway
John Lucas, ODOT Rox
Hanneman, ODOT R/W
Kent R. Belleque, ODOT
Jamie Hollenbeak ODOT R2 Acc
Aaron Geisler, Polk County
Matt Hughart, Kittelson & Assoc
Haregu Nemariam, CH2M HILL
Sumi Malik, CH2M HILL

FROM: Larry Weymouth, CH2M HILL

DATE: March 15, 20107

Meeting Date: November 20, 2007

Purpose of Meeting

The purpose of this meeting was to discuss closure and acquisition options for access management, alternatives and recommendations for the intersections and frontage/backage roads, the draft plan, and make plans for the open house on November 28. The meeting also included a progress update and related activities.

Change Management

Aaron Geisler, Polk County Public Works Director, will be leaving his position at the end of the month to take a position with W&H Pacific. Austin McGuigan and Greg Hanson, Chief Administrative Officer, will be splitting Aaron's work until a replacement is hired. Tim Gerling, Salem Public Works Director, is retiring.

Progress Report and Related Activities

Plans are set for the Open House next week and newsletter/invitations have been mailed. Should bring drawings of alternatives, topo of area, and spacing standards graphic from OHP.

Alternatives Comments

A summary of the current recommendations was distributed.

The DFR short-term alternative should be to stripe and sign the intersection for no left-out. Medium-term would retain the right-in only but add a deceleration lane. Other movements would be relocated farther west in the vicinity of Mill Street. A tunnel/undercrossing at Spring Street would provide connectivity for the north and south sides of the highway and would be a long-term option along with an interchange at College Drive. Access east of the weigh station would provide a connection to the undercrossing.

The GWR medium-term would be ROW acquisition, and the long-term alternative would be an overpass, with addition of the north frontage road as a long-term alternative, if needed.

The INH alternative will be decided during the EA, but a grade separation is needed.

Frontage/Backage Roads: NW-1 is not feasible because of the vineyard trellising impacts. NE-1 (frontage) is not feasible if the highway eventually is to be widened. NE-2 (backage) is preferred. Using the existing county roads, such as Aster, is favored. SE-1 (McNary Road) is preferred over SE-2 because of no blueberry farm impacts. However, SE-1 is not very cost effective.

Dave Baltz distributed a copy of a letter from Scott Erickson, Chair of the West Salem Neighborhood Association, which invited an ODOT representative to the association's next meeting. Dan said he would look into scheduling it. The association is most interested in the DFR intersection and possible College Drive interchange.

Reboot: Written comments on the draft EMP chapters are due by the end of the month to Dan Fricke. Not many comments have been received so far.

Next Steps

Distribute Open House summary. Revise EMP and produce Final Draft. Complete project by end of March. Initiate EA project. The next PMT meeting date is the regularly scheduled third Tuesday of the month: December 18, 1:30 to 3:00 p.m. (target adjournment) at ODOT Region 2 Planning, Rm. 116.

APPENDIX B

Oregon Highway Plan Policies

The Oregon Highway Plan (OHP) is a modal element of the Oregon Transportation Plan (OTP). The OHP addresses efficient management of the system to increase safety, preserve the system, and extend its capacity; increased partnerships, particularly with local and regional governments; links between land use and transportation; access management; links with other transportation modes; and environmental and scenic resources. The OHP also establishes a variety of policies that are directly related to this Expressway Management Plan. Policies 1A, State Highway Classification System; 1B, Land Use and Transportation; and 1C State Highway Freight System, are included in this appendix for reference and convenience of the reader. Consult the OHP for other policies.

OREGON HIGHWAY PLAN

SECTION II

POLICY ELEMENT

II. Policy Element

Goal 1: System Definition

To maintain and improve the safe and efficient movement of people and goods and contribute to the health of Oregon's local, regional, and statewide economies and livability of its communities.

Overview

The state highway classification system divides state highways into five categories based on function: Interstate, Statewide, Regional, District, and Local Interest Roads. Supplementing this base are four special purpose classifications: land use, statewide freight routes, scenic byways, and lifeline routes. These address the special expectations and demands placed on portions of the highway system by land uses, the movement of trucks, the Scenic Byway designation, and significance as a lifeline or emergency response route. Information contained in these special designations supplement the highway classification system and will be used to guide management, needs analysis, and investment decisions on the highway system.

The System Definition section also includes policies on highway mobility standards and major improvements, which further define state highway management goals and objectives.

■ State Highway Classification System

Background

The 1991 Highway Plan's Level of Importance Policy classified the state highway system into four levels of importance (Interstate, Statewide, Regional and District) to provide direction for managing the system and a basis for developing funding strategies for improvements. Realizing that limited funding would not allow all the statewide highways to be upgraded, the 1991 Highway Plan also designated some of the statewide highways as the Access Oregon Highway system to focus needed improvements. The goal of the Access Oregon Highway system was to provide an efficient and effective system of highways to link major economic and geographic centers.

Congress adopted the highway routes in the National Highway System (NHS) as part of the National Highway System Designation Act of 1995. In Oregon, the National Highway System highways include all the Interstate and Statewide Highways and Access Oregon Highways except for Oregon Highway 82. To reduce the redundancy between Level of Importance, Access Oregon Highways and the National Highway System and to define a

highway classification system that is consistent with the National Highway System, this Highway Plan has adopted the National Highway System as the primary classification and retained the Regional and District categories from the Level of Importance system. Oregon Highway 82 in Wallowa and Union Counties will remain a Statewide Highway. This ensures that every county in Oregon has a link to the rest of the state through the Statewide Highway network.

Congress also designated major intermodal connectors as part of the National Highway System. These roads, some owned by the state and some by local jurisdictions, are located in Astoria, Boardman, Coos Bay-North Bend, Eugene, Medford and Portland. (These roads are listed in Appendix D.) They link airports, ports, rail terminals, and other passenger and freight facilities to Interstate and Statewide Highways, and are of particular importance to Oregon's economy. State-owned intermodal connectors are either Regional or District Highways and are managed according to their state highway classification.

The classification system also recognizes that certain roads which are currently state highways function primarily as local roads. In cooperation with local governments, ODOT will develop a process to identify these roads which may be transferred to local jurisdictions in accordance with Policy 2C of this plan. The process will also consider the transfer of local highways and roads that serve primarily state interests to state jurisdiction.

ODOT will use the state highway classification system to guide management and investment decisions regarding state highway facilities. The system will be used in the development of corridor plans, transportation system plans, major investment studies, review of local plan and zoning amendments, periodic review of local comprehensive plans, highway project selection, design and development, and facility management decisions including road approach permits.

The broad classifications defined in Action 1A.1 will be complemented by specific subcategories and designations defined in other policies within this plan (see Policies 1B, 1C, 1D, 1E, 1F, and 3A). These subcategories and designations are policy-specific; the overall state highway classification defined in Policy 1A forms the basis for the classification system. The classification map in this plan and Appendix D detail the application of the state highway classification system to specific highways.

The categories recognize that different highway types have importance for certain areas and users. The categories are not the same as the federal government's functional classification system. It is the responsibility of the Oregon Transportation Commission to establish and modify the classification systems and the routes in them.

Policy 1A: State Highway Classification System

It is the policy of the State of Oregon to develop and apply the state highway classification system to guide ODOT priorities for system investment and management.

Action 1A.1

Use the following categories of state highways, and the list in Appendix D, to guide planning, management, and investment decisions regarding state highway facilities:

- **Interstate Highways (NHS)** provide connections to major cities, regions of the state, and other states. A secondary function in urban areas is to provide connections for regional trips within the metropolitan area. The Interstate Highways are major freight routes and their objective is to provide mobility. The management objective is to provide for safe and efficient high-speed continuous-flow operation in urban and rural areas.
- **Statewide Highways (NHS)** typically provide inter-urban and inter-regional mobility and provide connections to larger urban areas, ports, and major recreation areas that are not directly served by Interstate Highways. A secondary function is to provide connections for intra-urban and intra-regional trips. The management objective is to provide safe and efficient, high-speed, continuous-flow operation. In constrained and urban areas, interruptions to flow should be minimal. Inside Special Transportation Areas (STAs), local access may also be a priority.
- **Regional Highways** typically provide connections and links to regional centers, Statewide or Interstate Highways, or economic or activity centers of regional significance. The management objective is to provide safe and efficient, high-speed, continuous-flow operation in rural areas and moderate to high-speed operations in urban and urbanizing areas. A secondary function is to serve land uses in the vicinity of these highways. Inside STAs, local access is also a priority. Inside Urban Business Areas, mobility is balanced with local access.
- **District Highways** are facilities of county-wide significance and function largely as county and city arterials or collectors. They provide connections and links between small urbanized areas, rural centers and urban hubs, and also serve local access and traffic. The management objective is to provide for safe and efficient, moderate to high-speed continuous-flow operation in rural areas reflecting the surrounding environment and moderate to low-speed operation in urban and urbanizing areas for traffic flow and for pedestrian and bicycle movements. Inside STAs, local access is a priority. Inside Urban Business Areas, mobility is balanced with local access.
- **Local Interest Roads** function as local streets or arterials and serve little or no purpose for through traffic mobility. Some are frontage roads; some are not eligible for federal funding. Currently, these roads are District

Highways or unclassified and will be identified through a process delineated according to Policy 2C. The management objective is to provide for safe and efficient, low to moderate speed traffic flow and for pedestrian and bicycle movements. Inside STAs, local access is a priority. ODOT will seek opportunities to transfer these roads to local jurisdictions.

Action 1A.2

By action of the Oregon Transportation Commission upon consultation with affected local governments, classify and/or develop Expressways as a subset of Statewide, Regional and District Highways.

a. Definition. Expressways are complete routes or segments of existing two-lane and multi-lane highways and planned multi-lane highways that provide for safe and efficient high speed and high volume traffic movements. Their primary function is to provide for interurban travel and connections to ports and major recreation areas with minimal interruptions. A secondary function is to provide for long distance intra-urban travel in metropolitan areas. In urban areas, speeds are moderate to high. In rural areas, speeds are high. Usually there are no pedestrian facilities, and bikeways may be separated from the roadway.

In this classification, "expressway" refers to the kind and number of accesses allowed on a highway segment. It does not refer to the ownership of access rights. Other characteristics include the following:

- Private access is discouraged;
  - There is a long-range plan to eliminate, as possible, existing approach roads as opportunities occur or alternate access becomes available;
  - Access rights will be purchased and a local road network may be developed consistent with the function of the roadway;
- Public road connections are highly controlled;
- Traffic signals are discouraged in rural areas;
- Nontraversible medians are encouraged; and
- Parking is prohibited.

b. Classification. Initiation of the process to classify Expressways will occur as a result of a corridor planning process, ODOT special study or action of the Transportation Commission.

Because of the importance of maintaining system mobility, the Transportation Commission will classify new Expressways as a subset of National Highway System (Interstate and Statewide) highways in consultation with local governments.

The Transportation Commission will classify new Expressways as a subset of Regional and District Highways with the agreement of directly affected local governments.

Highways that are already limited access will be automatically classified as Expressways by the Transportation Commission. These are highways where ODOT owns the access rights and direct access is not allowed and where users enter or exit the roadway only at interchanges.

c. Criteria. Highways proposed to be Expressways will be classified on the basis of the following criteria:

- Importance as an NHS route with high volumes of traffic;
- Designation as a part of the State Highway Freight System;
- Designation as a safety corridor; or
- Function as an urban bypass.

The process of classifying segments as Expressways will first focus on highway segments where posted speeds are 50 miles per hour or greater.

Action 1A.3

Conduct a study of highway classifications statewide to determine whether highways function as they are classified. Conduct this study after the adoption of the Highway Plan as a special study of the classification system or as a part of corridor planning. Consider changing the classification of a state highway if the function of the highway has changed significantly since its original classification or the function does not fit the classification description. The classification change will be effective when the Oregon Transportation Commission adopts the change as part of a corridor plan or other planning process.

■ Land Use and Transportation

Background

The federal Intermodal Surface Transportation Efficiency Act of 1991 requires the establishment of a National Highway System "to provide an interconnected system of principal arterial routes which will serve…Interstate and inter-regional travel." ODOT has an obligation to insure that the National Highway System (the routes designated Interstates, and most Statewide Highways and intermodal connectors) adequately performs this function of serving a larger geographic area. Historically, however, communities have grown up along statewide travel routes. This means that in addition to providing mobility for people, goods and services between communities, regions and states, the state highway system often also provides access to homes, businesses, industry and other destinations within communities.

The highway system's ability to fulfill these functions depends in large part on community land use patterns and the ways that land uses are served by the transportation system. Development with poorly designed accesses along highways and poorly developed street networks often focus local traffic on state highways and reduce the ability of state highways to move through traffic and provide connections between communities. Communities with

compact urban designs that incorporate a transportation network of arterials and collectors reduce traffic impacts on state highways whose primary objectives are to connect cities and move people, goods and services between cities and regions.

The Land Use and Transportation Policy addresses the relationship between the highway and patterns of development both on and off the highway. It emphasizes development patterns that maintain state highways for regional and intercity mobility and compact development patterns that are less dependent on state highways than linear development for access and local circulation.

Policy 1B also recognizes that state highways serve as the main streets of many communities, and it strives to maintain a balance between serving these main streets and the through traveler. It emphasizes management of the transportation system for safety and efficient use of resources. It recognizes the main street function of state highways through designation of these areas as Special Transportation Areas.

The policy encourages compact development patterns for large-scale commercial development through the special designation of Commercial Centers on Statewide, Regional and District Highways, and recognizes existing and future commercial centers of activity called Urban Business Areas on urbanized low-speed Regional and District Highways and on Statewide Highways under certain circumstances.

Focusing growth in more compact development patterns can have the following transportation benefits:

- Reduction of local trips and travel on state highways;
- Shorter vehicle trips;
- More opportunity to walk, bicycle, or use available transit services;
- Increased opportunities to develop transit; and
- Reduction of the number of vehicle trips to shop and do business.

These measures can enhance air quality and conserve energy.

The overall goal and focus of the Land Use and Transportation Policy is to connect land use and transportation in a way that achieves long-term objectives for the state highway and the local community. In applying the policy, ODOT will recognize the regional and topographical differences of communities throughout Oregon.

ODOT acknowledges that the best way to implement the policy is to establish cooperative working relationships with local governments. This includes a commitment on ODOT's part to:

- Participate actively, early, and continuously in the development of transportation system plans and periodic review;
- Look for creative and innovative transportation and land use solutions to transportation problems;
- Work within the context of acknowledged land use plans and zoning; and

- Support planning and implementation of improvements within centers and Special Transportation Areas, including off-system improvements that benefit operation of the state highway system.

The policy recognizes that:

- Local governments are responsible for planning and zoning land uses within their jurisdictions and for developing and managing the local transportation system;
- ODOT is responsible for developing and managing the state highway system;
- ODOT and local and regional governments must work collaboratively to achieve accessibility and mobility goals for a balanced transportation system.

Policy 1B applies to all state highways. It provides guidance to ODOT regarding system management planning and implementation activities. It is not proposed to be an administrative rule. It is designed to clarify how ODOT will work with local governments and others to link land use and transportation in transportation system plans, corridor plans, plan amendments, access permitting, and project development.

ODOT recognizes that the policy will be applied under three different circumstances:

- Existing conditions which do not meet the policy objectives. In these circumstances, the policy will be used to gain closer levels of compliance with the objectives and/or actions.
- A mixture of existing non-compliant conditions and new proposals, projects or developments where higher levels of compliance with the objectives and/or actions would be desirable. In these circumstances, ODOT, the affected local government and/or affected parties need to work out a way to best achieve compliance with the objectives and/or actions.
- New conditions or development where there is an ability to fully comply with the policy objectives and/or actions.

Policy 1B implements the Oregon Transportation Plan's Urban Accessibility Policy to "assure balanced, multimodal accessibility to existing and new development within urban areas to achieve the state goal of compact, highly livable urban areas." The Highway Plan's policies on Major Improvements, Highway Mobility Standards, Partnerships, Off-system Improvements and Travel Alternatives complement the Land Use and Transportation Policy. "Nodal development" in the Eugene-Springfield *TransPlan* and "2040 concept areas" in Metro's *2040 Plan* are consistent with the policy direction of Policy 1B.

Policy 1B: Land Use and Transportation

This policy recognizes the role of both the State and local governments related to the state highway system:

- ***State and local government must work together to provide safe and efficient roads for livability and economic viability for all citizens.***
- ***State and local government must share responsibility for the road system.***

- ***State and local government must work collaboratively in planning and decision-making relating to transportation system management.***

It is the policy of the State of Oregon to coordinate land use and transportation decisions to efficiently use public infrastructure investments to:

- ***Maintain the mobility and safety of the highway system;***
- ***Foster compact development patterns in communities;***
- ***Encourage the availability and use of transportation alternatives;***
- ***Enhance livability and economic competitiveness; and***
- ***Support acknowledged regional, city and county transportation system plans that are consistent with this Highway Plan.***

Action 1B.1

Work with local governments to develop and implement plans that support compact development, especially within community centers and commercial centers. Support plans, strategies and local ordinances that include:

- Parallel and interconnected local roadway networks to encourage local automobile trips off the state highway;
- Transit, bicycle, and pedestrian facilities, including street amenities that support these modes;
- Design and orientation of buildings and amenities that accommodate pedestrian and bicycle use as well as automobile use;
- Provision of public and shared parking;
- Infill and redevelopment;
- Expansion of intensive urban development guided away from state highways rather than along state highways; and
- Other supporting public investments that encourage compact development and development within centers.

Action 1B.2

Work with local governments to help protect the state highway function by collaborating with local jurisdictions in developing land use and subdivision ordinances, specifically:

- A process for coordinated review of future land use decisions affecting transportation facilities, corridors, or sites;
- A process to apply conditions to development proposals in order to minimize impacts and protect transportation facilities, corridors, or sites;
- Regulations assuring that amendments to land use designations, densities and design standards are consistent with the functions, capacities, and

highway mobility standards of facilities identified in transportation system plans including the Oregon Highway Plan and adopted highway corridor plans;

- Refinement of zoning and permitted and conditional uses to reflect the effects of various uses on traffic generation;
- Standards to protect future operation of state highways and other roads; and
- Access control measures, for example, driveway and public road spacing, median control and signal spacing standards which are consistent with the functional classification of roads and consistent with limiting development on rural lands to rural uses and densities.

Action 1B.3

To assist in implementing state access management standards and policies, work with local governments to develop an access management plan or access management component in comprehensive plans, corridor plans and/or transportation system plans involving the state and local system.

After the Oregon Transportation Commission has adopted administrative rules regarding access management and approach road permitting, ODOT and a local government may enter into an Intergovernmental Agreement setting provisions for and allowing the local government to issue approach road permits on state Regional and District Highways in accordance with all applicable standards and criteria contained in the Oregon Highway Plan, Oregon Administrative Rules and Oregon Revised Statutes, and the local adopted and acknowledged transportation system plan. This provision shall not apply to Regional and District Expressways.

Action 1B.4

Work with local governments to maintain the highway mobility standards on state highways by limiting the expansion of development along the highway through the following means:

- Developing an adequate local network of arterials, collectors, and local streets to limit the use of the state highway or interchanges for local trips;
- Reducing access to the state highway by use of shared accesses, access from side or back roads, and frontage roads and by development of local street networks as redevelopment along state highways occurs;
- Clustering development off of state highways in compact development patterns; and
- Avoiding the expansion of urban growth boundaries along Interstate and Statewide Highways and around interchanges unless ODOT and the appropriate local governments agree to an interchange management plan

to protect interchange operation or access management plan for segments along non-freeway highways.

Action 1B.5

Work with local governments to develop corridor and transportation system plans that protect existing limited access interchanges according to the following functional priorities:

- At all existing limited access highway interchanges, provide safe egress from freeways and Expressways as the first priority. This priority must be met.
- When an interchange connects a freeway or an Expressway to an Interstate, Statewide or Regional Highway, provide regional access to freeways and Expressways as the second highest priority.
- Establish the priority for travel across freeways and Expressways and the priority for access to property in the vicinity of the interchange consistently in both the local transportation system plan and the corridor plan.
- When an interchange connects a freeway or an Expressway to a District Highway or Local Interest Road, establish the priority for travel across freeways and Expressways and the priority for access to property in the vicinity of the interchange consistently in both the local transportation system plan and the corridor plan.

Action 1B.6

Develop design guidelines for highways that describe a range of automobile, pedestrian, bicycle or transit travel alternatives. The guidelines should include appropriate design features such as lighted, safe and accessible bus stops, on-street parking, ample sidewalks, pedestrian crossings, pedestrian scale lighting, street trees and related features.

Action 1B.7

To foster compact development patterns in communities, use the following highway segment designations and objectives to guide planning and management decisions for state highways. Use the highway segment designations to guide ODOT's position on local land use planning and development standards and actions and to define the application of access management standards and broad types of highway facility design. Work with local governments to apply these highway segment designations to segments of the state highway consistent with the local acknowledged comprehensive plan and/or transportation system plan. In plans and projects, work toward achieving specific objectives for each designation as listed in Table 4 (page 52).

- **Special Transportation Area[1]:** The primary objective of managing highway facilities in an existing or future Special Transportation Area is to provide access to community activities, businesses, and residences and to accommodate pedestrian movement along and across the highway in a downtown, business district and/or community center including those in unincorporated communities as defined by OAR 660-22. An STA is a highway segment designation that may be applied to a highway segment, when a downtown, business district or community center straddles the state highway within an urban growth boundary or in an unincorporated community in accordance with Action 1B.9. Direct street connections and shared on-street parking are encouraged in urban areas and may be encouraged in unincorporated communities. Direct property access is limited in an STA. Local auto, pedestrian, bicycle and transit movements to the business district or community center are generally as important as the through movement of traffic. Traffic speeds are slow, generally 25 miles per hour (40 kilometers per hour) or less.

- **Commercial Centers:** The primary objective of the state highway adjacent to a Commercial Center is to maintain through traffic mobility in accordance with its function. A Commercial Center is a highway segment designation which may apply to an existing or future center of commercial activity which may generally have 400,000 square feet (37,000 square meters) or more of gross leasable area or public buildings. The majority of the average daily trips to the center originate in the community in which the center is located. The buildings are clustered with limited direct access to the state highway to reduce the number of vehicle trips and to reduce conflicts with through traffic. They may be located on Statewide, Regional or District Highways within an urban growth boundary. They include a high level of regional accessibility and connections to a local road network. The Commercial Center accommodates pedestrian and bicycle access and circulation and, where appropriate, transit movements.

- **Urban Business Areas:** The Urban Business Area is a highway segment designation which may vary in size and which recognizes existing areas of commercial activity or future nodes or various types of centers of commercial activity within urban growth boundaries on District, Regional or Statewide Highways where vehicular accessibility is important to continued economic viability. The primary objective of the state highway in an Urban Business Area (UBA) is to maintain existing speeds while balancing the access needs of abutting properties with the need to move through traffic. A UBA is a highway segment designation that may apply to an existing area of commercial activity or future center or node of commercial activity in a community located on a District, Regional or Statewide Highway where speeds are 35 miles per hour (55 kilometers per hour) or less. The designation of UBAs on Statewide Highways shall be limited to only those special circumstances where, from a system wide

[1] Metro concepts for Central City, Town Center and Main Streets are consistent with STAs.

perspective, the need for local access clearly equals or is greater than the need for mobility for an existing designation, and for a new designation, the need for local access must be greater than the need for mobility. Vehicular accessibility is often as important as pedestrian, bicycle and transit accessibility. Safe and regular street connections are encouraged. Transit turnouts, sidewalks, and bicycle lanes are accommodated.

- **Urban:** The objective of an Urban segment designation is to efficiently move through traffic while also meeting the access needs of nearby properties. Access can be provided to and from individual properties abutting an Urban segment, but the strong preference is to limit such access, providing it instead on connecting local roads and streets. Transit turnouts, sidewalks, and bicycle lanes are accommodated.

Action 1B.8

Use the classifications and the objectives in Action 1B.7 in planning and decision making involving:

- Access management planning and permitting;
- Development and review of corridor plans;
- Review of metropolitan planning organization and local transportation system plans;
- Periodic review of local comprehensive plans;
- Review of local plan and zoning amendments;
- Review of major development designs within adopted comprehensive plans for commercial/industrial and subdivision development that has a significant impact on a state highway;
- Review of site acquisition and construction of proposed public facilities;
- Review of urban growth boundary amendments;
- Development of major investment studies; and
- Highway facility design and project development.

Action 1B.9

Based on a regional or local transportation system plan or comprehensive plan, ODOT and a local government may agree in writing to manage a downtown, business district, or community center inside an urban growth boundary or rural unincorporated community as a Special Transportation Area.

a. Characteristics. An STA has the following characteristics:

- An STA is a designated compact district located on a state highway within an urban growth boundary in which the need for appropriate local access

outweighs the considerations of highway mobility except on designated Freight Highways where accessibility and mobility needs are balanced.

- While traffic moves through an STA and automobiles may play an important role in accessing an STA, convenience of movement within an STA is focused upon pedestrian, bicycle and transit modes. STAs have a plan for an interconnected local street network to facilitate local automobile and pedestrian circulation except where topography severely constrains the potential for street connections. Speeds typically do not exceed 25 miles per hour (40 kilometers per hour).
- People who arrive by car or transit find it convenient to walk from place to place within the area.
- Larger communities may have more than one STA.

b. Other Attributes. An STA has the majority, if not all, of the following attributes, either as existing or planned uses and infrastructure through an adopted management plan (see Action 1B.11).

- Mixed uses;
- Buildings spaced close together and located adjacent to the street with little or no setback;
- Sidewalks with ample width which are located adjacent to the highway and the buildings;
- Interconnected local street networks to facilitate local automobile and pedestrian circulation except where topography severely constrains the potential for street connections;
- On street parking and shared or general purpose parking lots which are located behind or to the side of buildings; and
- Convenient automobile and pedestrian circulation within the center and off the state highway.

An STA does not apply to an entire city or the majority of a city or to strip development areas along individual highway corridors. STAs are not located on freeways or Expressways. STAs may be located within established city limits or within an area between a city limit and an urban growth boundary where such a classification would result in redevelopment to eliminate an existing pattern of strip development.

An existing central business/commercial district in an unincorporated community as defined by OAR 660-22 that meets the definition of an STA may also be classified an STA.

Action 1B.10

Consider a proposal to establish a Special Transportation Area where compact development did not exist at the adoption of this Highway Plan only if the proposed STA is already planned in the local or regional adopted

comprehensive plan. Through transportation system plans, corridor plans and/or off-system improvements, encourage any new development in an area proposed as an STA to be developed off of the highway or only on one side of the highway.

Action 1B.11

Work cooperatively with local governments to designate existing and future Special Transportation Areas.

a. Designation. The first step is to identify potential STAs in a corridor plan or regional or local transportation system plan.

The second step is for ODOT and the local jurisdiction to mutually develop and agree to the management plan, within an Intergovernmental Agreement or Memorandum of Understanding. The agreement for an STA in an unincorporated community shall be with the affected county government. The STA management plan may include less restrictive highway mobility standards (see Policy 1F) and may use flexible streetscape designs in order to improve local access and community functions. The agreement will be in effect when the STA is adopted as part of a local transportation system plan and comprehensive plan and in the corresponding corridor plan where a corridor plan exists.

b. Management Plan. The management plan for each STA in the local transportation system plan shall include:

- Goals and objectives;
- Clearly defined STA boundaries;
- Design standards that are to be applied to the STA to improve local access and community functions. These may include highway mobility standards, street spacing standards, signal spacing standards and street treatments, and must be reviewed by the Technical Services Manager or his/her designee;
- Strategies for addressing freight and through traffic including traffic speed, possible signalization, parallel or other routes, and actions in other parts of the corridor which address through traffic needs;
- Parking strategies, which address on and off street and shared parking;
- Provisions for a network of local traffic, transit, pedestrian, and bicycle circulation;
- An analysis of the regional and local traffic and safety impacts of the STA to determine the effects of the STA designation. All parties must agree to the analysis methodology, and it must be consistent with regional plans and ODOT analysis methods;
- Identification of needed improvements within the STA or improvements that will support access to the STA and designation of the party

responsible for implementation, likely funding source and anticipated time frame; and

- Identification of maintenance and operational strategies to be employed.

Action 1B.12

Whether an area qualifies for STA highway segment designation or not, encourage local governments to cluster commercial development in community centers or Commercial Centers with limited access to the state highway to reduce the number of vehicle trips and to reduce conflicts with through traffic.

a. Definition. Encourage a Commercial Center[2] to locate in a community that is the population center for the region, and where the majority of the average daily trips to the center originate in the community in which the Commercial Center is located. Generally these centers have 400,000 square feet (37,000 square meters) or more of gross leasable area or public buildings. These centers are intended for commercial or mixed commercial, retail and office activities. They may include public uses. The buildings are clustered with consolidated access to the state highway rather than developed along the highway with multiple accesses. Multi-family residential uses may be located within or adjacent to a center. Major metropolitan areas may have multiple Commercial Centers.

b. Attributes. Commercial Centers must be designated in a regional or local transportation system plan or comprehensive plan and referenced in a corridor plan, have clearly defined boundaries and include the following, or have a plan adopted by the affected local government(s) to provide the following, before the site is fully developed:

- Convenient circulation within the center, including pedestrian and bicycle access and circulation;
- Provisions for transit access in urban areas planned for fixed-route transit service;
- Shared parking and a reduction in parking to accommodate multimodal elements where alternate modes are available;
- A high level of regional accessibility;
- Accessibility by a variety of routes and modes and a local road network so that most of the traffic circulation may occur off of the state highway; and
- Compact development patterns.

In return for having the above characteristics and adhering strictly to access management spacing standards as provided in Policies 3A and 3C, consider allowing the highway mobility standard to be the same as that for Special Transportation Areas at the point of access to the state highway. The highway

[2] Metro's concept for a Regional Center is consistent with a Commercial Center.

mobility of any affected freeway interchange may not decline below the highway mobility standard for the interchange designated by Policy 1F (Table 6, page 68, and Table 7, page 69).

Action 1B.13

Work cooperatively with local governments to designate existing and future Urban Business Areas (UBAs) through a corridor plan and/or local transportation system plan. A UBA is a highway segment designation that may apply to existing areas of commercial activity or future nodes or various types of centers of commercial activity in a community located on a Statewide, Regional or District Highway within an urban growth boundary where speeds are 35 miles per hour (55 kilometers per hour) or less. The designation of UBAs on Statewide Highways shall be limited to only those special circumstances where, from a system wide perspective, the need for local access clearly equals or is greater than the need for mobility for an existing designation, and for a new designation, the need for local access must be greater than the need for mobility.

The highway segment designation must be made through a corridor plan and/or local transportation system plan with the agreement of both ODOT and the affected local government.

The designation provisions in the corridor plan and/or local transportation system plan shall include an interconnected local street and private drive network to facilitate local automobile and pedestrian circulation except where topography severely constrains the potential for street connections. New buildings in a UBA should be clustered in centers or nodes so that the facilities encourage people who arrive by car or transit to find it convenient to walk from place to place within the area.

Action 1B.14

Work to accommodate alternate modes on state highways according to the various types of land uses and highways. Work toward development of alternate mode facilities in Special Transportation Areas, Commercial Centers and Urban Business Areas according to the other actions in this policy and to Table 4 on page 52. Use the following objectives to guide project design and development in other areas:

a. Within Urban Growth Boundaries:

On Expressways:

- Accommodate bicycle lanes, if any, on shoulders or separated facilities.
- Although pedestrians are generally not accommodated on Expressways for safety reasons, analyze accommodation on a case by case basis.

On Other Urban Statewide, Regional and District Highways:

- Accommodate bicycle lanes and sidewalks and other pedestrian facilities, especially in commercial centers and community use areas.

- Provide convenient pedestrian crossings, especially at transit stops and other high-use generators.
- Design intersections to address the needs of pedestrians and bicyclists.

b. Outside Urban Growth Boundaries:

- In unincorporated communities, address pedestrian crossing safety. This may be addressed through traffic signals and medians designed to serve as pedestrian refuges.

Table 2: Potential Location of Highway Segment Designations[3]

Type of Highway	STA	Commercial Center/UBA
Interstate	None	None
Statewide Highway		
Urban (Within UGBs)		
Expressway	None[5]	Commercial Center
Other	Yes	Commercial Center/UBA (where there are specific circumstances and where speeds are 35 mph or less)
Rural (Outside UGBs)		
Expressway	None	None
Other	Yes	None
Regional Highway		
Urban (Within UGBs)		
Expressway	None[5]	Commercial Center
Other	Yes	Commercial Center/UBA (where speeds are 35 mph or less)
Rural (Outside UGBs)		
Expressway	None	None
Other	Yes	None
District Highway		
Urban (Within UGBs)		
Expressway	None[5]	Commercial Center
Other	Yes	Commercial Center/UBA (where speeds are 35 mph or less)
Rural (Outside UGBs)		
Expressway	None	None
Other	Yes	None

[3] The location criteria assume there is direct access to the highway facility. An STA or Commercial Center, for example, can be adjacent to an Interstate Highway, but the direct access to highway facilities will be to an urban arterial. An STA can be located on a highway segment between parts of an Expressway if there are transition zones between the traffic speeds of the Expressway and the STA.

Table 3: Highway Segment Designations and Designating Process

Highway Segment Designation	Designation Process	Designating Body
Commercial Center	Corridor plan Local transportation system plan	ODOT & local government in a plan
Urban Business Area	Corridor plan Local transportation system plan	ODOT & local government in a plan
Special Transportation Area	Corridor plan Local transportation system plan	ODOT & local government in an *IGA/MOU & plan

* IGA = Intergovernmental Agreement
MOU = Memorandum of Understanding

Table 4: Elements of Strategies to meet the Objectives of the Land Use and Transportation Policy

Land Use Type	Elements of Strategy			
	Land Use	**Alternative Modes**	**Traffic Management**	**Access Management**
Special Transportation Area	• Adjacent land uses that provide for compact, mixed-use development. "Compact" means that buildings are spaced closely together, parking is shared and sidewalks bind the street to the building. Mixed-use development includes a mixture of community places and uses. • Infill and redevelopment. • Design and orientation of buildings that accommodate pedestrian and bicycle circulation, as well as automobile use. • An adopted management plan as part of the comprehensive plan that shows the area as a compact district with development requirements that address local auto trips, street connectivity, shared parking, design and layout of buildings, parking and sidewalks that encourage a pedestrian-oriented environment.	• Well-developed transit, bicycle and pedestrian facilities, including street amenities that support these modes.	• A well-developed parallel and interconnected local roadway network. • A parking strategy that favors shared general purpose parking, preferably on-street parking and shared parking lots. • Streets designed for ease of crossing by pedestrians.	• Public road connections that correspond to the existing city block. • Private driveways discouraged.
Commercial Center	• Clustered development with shared parking.	• Facilities for bicycle and pedestrian access and circulation. • Provisions for transit movements.	• Connections to network of local streets.	• Joint access to state highways.
Urban Business Areas	• Businesses and buildings clustered in centers or nodes.	• Bicycle lanes and sidewalks and other pedestrian accommodations, especially in commercial centers and community use areas.	• Development of a strategy for good traffic progression. • An efficient parallel local street system where arterials and collectors connect to the state highway.	• Local ordinances that support shared driveway approaches and inter-parcel circulation.

Land Use Type	Elements of Strategy			
	Land Use	**Alternative Modes**	**Traffic Management**	**Access Management**
Urban Business Areas (continued from previous page)		• Convenient and safe pedestrian crossings, especially at transit stops and other high-use generators. • Intersections designed to address the needs of pedestrians and bicyclists. • Measures for addressing pedestrian crossing safety. These may include stop signs, traffic signals and medians designed to serve as pedestrian refuges.	• Improved traffic management strategies such as Advanced Traffic Management Systems.	

State Highway Freight System

Background

According to the 1993 *Commodity Flow Study*, most freight shipments originating in Oregon are moved by truck (64 percent of the value and 76 percent of the weight of commodities). To ensure that freight is able to move efficiently on the state's major trucking routes, this plan designates a state highway freight system (Table 5, page 56), using freight volume, tonnage, connectivity, and linkages to National Highway System intermodal facilities as the key criteria. The State Highway Freight System is intended to facilitate interstate, intrastate, and regional movements of trucks. This freight system, made up of the Interstate Highways and certain Statewide Highways on the National Highway System, includes routes that carry significant tonnage of freight by truck and serve as the primary interstate and intrastate highway freight connection to ports, intermodal terminals, and urban areas. It supersedes and replaces the designation of primary freight corridors in the Oregon Transportation Plan.

Freight depends upon timely and dependable movement of goods over the system; some industries structure their facilities and processes on just-in-time deliveries. Highway efficiency for goods movement in an expanding economy will require public and private investments in infrastructure as well as changes in road operations to reduce congestion on freight routes. Designating a network of freight routes of primary importance to the state will help ensure that these investments are coordinated in a way that reinforces the unique needs of the freight system.

Improving and maintaining the efficiency of highway operations requires balancing the needs of freight movement with the needs of other users of the highway system. Some state highways that are important goods movement corridors also serve as communities' main streets and may be designated as Special Transportation Areas. It may be the objective of local officials to reduce or slow traffic passing through the town, with potentially adverse impacts on long distance freight transportation. In such cases, system investment decisions and local land use planning should recognize the special significance of the designated statewide freight system and balance freight needs with local circulation and access needs. Regional and local jurisdictions may designate their own freight route systems, but these designations should be compatible with or complementary to the designation of routes in the State Highway Freight System.

The State Highway Freight System designation does not guarantee additional state investment in these routes. However, three special management strategies are available:

- Highways included in this designation have higher highway mobility standards than other Statewide Highways (see Policy 1F).
- The highway's function as a freight route should be balanced with local accessibility in Special Transportation Areas.
- Freight system routes may be treated as Expressways outside of urban growth boundaries and unincorporated communities. (See Action 1C.3 and the definition of Expressways in Action 1A.2.)

Policy 1C: State Highway Freight System

It is the policy of the State of Oregon to balance the need for movement of goods with other uses of the highway system, and to recognize the importance of maintaining efficient through movement on major truck freight routes.

Action 1C.1

Apply performance standards appropriate to the movement of freight on freight routes.

Action 1C.2

Prepare a statewide freight study to address the role of trucks and other freight modes in Oregon's economy, freight mobility and accessibility issues, current, near-term and long-term needs, and other topics.

Action 1C.3

In the development of corridor plans, work with local governments to examine options to:

- Treat designated freight routes as Expressways where the routes are outside of urban growth boundaries and unincorporated communities. Continue to treat freight routes as Expressways within urban growth boundaries where existing facilities are limited access or where corridor or transportation system plans indicate limited access; and
- Recognize and balance freight needs with needs for local circulation, safety and access in Special Transportation Areas.

Action 1C.4

Consider the importance of timeliness in freight movements in developing and implementing plans and projects on freight routes.

Table 5: Designated Freight Routes

Route	Description of Highway or Segment Included
I-5	Washington State Line to California State Line
I-82	Washington State Line to I-84
I-84	I-5 (Portland) to Idaho State Line
I-205	Washington State Line to I-5 (Portland)
I-405	I-5 (Portland) to I-5 (Portland)
US 20 / OR 34	US 101 (Newport) to I-5
US 26	US 101 to I-405 (Portland)
US 26	OR 212 to US 97 (Madras)
US 30	US 101 (Astoria) to I-405 (Portland)
US 97	Washington State Line to California State Line
US 101	OR 38 (Reedsport) to OR 42 (Coos Bay)
OR 18 / OR 99W	US 101 (Lincoln City) to I-5 (Tigard)
OR 22 / US 20 / OR 201 / US 30 BUS	I-5 (Salem) to I-84 (Ontario)
OR 38	US 101 (Reedsport) to I-5
OR 42	US 101 (Coos Bay) to I-5 (Roseburg)
OR 58	I-5 (Eugene) to US 97
OR 99E	I-84 (Portland) to OR 224 (Milwaukie)
OR 126 / I-105	Near West Eugene City Limits (Richmond St.) to I-5 (Eugene)
OR 217	US 26 (Beaverton) to I-5 (Tigard)
OR 224 / OR 212	OR 99E (Milwaukie) to US 26

APPENDIX C

Mobility and Spacing Standards and Access Management

This appendix includes relevant mobility and spacing standards from the Oregon Highway Plan and Polk County Transportation System Plan. Also included is OAR 734-051-0155, which provides requirements for Access Management Plans as part of highway segment facility plans.

Appendix C:[4]

Access Management Standards

Access Management Spacing Standards

The following tables show the access spacing standards for the access management classifications listed in Goal 3, Policy 3A: Classification and Spacing Criteria, Action 3A.1.

Table 12: Interchange Spacing [(1)]

Access Management Classification	Area	Interchange Spacing[(2)(3)]
Interstate* and Non-Interstate Freeways (NHS)	Urban	3 miles (5 kilometers)
	Rural	6 miles (10 kilometers)
All Expressways (NHS), Statewide (NHS), Regional and District Highways	Urban	1.9 miles (3 kilometers)
	Rural	3 miles (5 kilometers)

Notes for Table 12:

* Interstate interchange spacing must be in conformance with federal policy.

(1) The spacing standards in Table 12 are for planning and design of new interchanges on freeways or expressways. A design exception is required to change these standards. A proposed design exception should also consider the spacing requirements in the Interchange Access Management Area Tables 16-19.

(2) Crossroad to crossroad centerline distance.

(3) A design exception is required to change these planning spacing standards.

[4] Appendix C was replaced as part of Technical Amendment 06 - 21 to include changes adopted as Amendments 04 - 13 and 05 - 16.

Table 13: Access Management Spacing Standards For Statewide Highways (1)(2)(3)(4)

(Measurement in Feet)*

Posted Speed(5)	Rural Expressway **	Rural	Urban Expressway ** ***	Urban ****	STA
≥55	5280	1320	2640	1320	
50	5280	1100	2640	1100	
40 & 45	5280	990	2640	990	
30 & 35		770		720	(6)
≤25		550		520	(6)

Notes: The numbers in parentheses refer to explanatory notes that follow tables 13-15.

* Measurement of the approach road spacing is from center to center on the same side of the roadway.

** Spacing for Expressway at-grade intersections only. See Table 12 for interchange spacing.

*** These standards also apply to Commercial Centers.

**** The Urban standard applies in UBAs unless a management plan agreed to by ODOT and the local government(s) establishes a different standard. Spacing standards on access controlled facilities are also guided by those controls.

Table 14: Access Management Spacing Standards for Regional Highways (1)(2)(3)(4)

(Measurement in Feet)*

Posted Speed(5)	Rural Expressway **	Rural	Urban Expressway ** ***	Urban ****	STA
≥55	5280	990	2640	990	
50	5280	830	2640	830	
40 & 45	5280	750	2640	750	
30 & 35		600		425	(6)
≤25		450		350	(6)

Notes: The numbers in parentheses refer to explanatory notes that follow tables 13-15.

* Measurement of the approach road spacing is from center to center on the same side of the roadway.

** Spacing for Expressway at-grade intersections only. See Table 12 for interchange spacing.

*** These standards also apply to Commercial Centers.

**** The Urban standard applies in UBAs unless a management plan agreed to by ODOT and the local government(s) establishes a different standard. Spacing standards on access controlled facilities are also guided by those controls.

Table 15: Access Management Spacing Standards for District Highways (1)(2)(3)(4)

(Measurement in Feet)*

Posted Speed(5)	Rural Expressway **	Rural	Urban Expressway ** ***	Urban ****	STA
≥55	5280	700	2640	700	
50	5280	550	2640	550	
40 & 45	5280	500	2640	500	
30 & 35		400		350	(6)
≤25		400		350	(6)

Notes: The numbers in parenthesis refer to explanatory notes that follow tables 13-15.

* Measurement of the approach road spacing is from center to center on the same side of the roadway.

** Spacing for Expressway at-grade intersections only. See Table 12 for interchange spacing.

*** These standards also apply to Commercial Centers.

**** The Urban standard applies in UBAs unless a management plan agreed to by ODOT and the local government(s) establishes a different standard. Spacing standards on access controlled facilities are also guided by those controls.

Notes on Tables 13, 14 and 15:

(1) These access management spacing standards are for unsignalized approaches only. Signal spacing standards supersedes access management spacing standards for approaches.

(2) These access management spacing standards do not apply to approaches in existence prior to April 1, 2000 except as provided in OAR 734-051-0115(1)(c) and 734-051-0125(1)(c).

(3) For in-fill and redevelopment, see OAR 734-051-0135(4).

(4) For deviations to the designated access management spacing standards see OAR 734-051-0135.

(5) Posted Speed: Posted speed can only be adjusted (up or down) after a speed study is conducted and that study determines the correct posted speed to be different than the current posted speed. In cases where actual speeds are suspected to be much higher than posted speeds, the Department reserves the right to adjust the access management spacing accordingly. A determination can be made to go to longer access management spacing standards as appropriate for a higher speed. A speed study will need to be conducted to determine the correct speed.

(6) Minimum access management spacing for public road approaches is the existing city block spacing or the city block spacing as identified in the local comprehensive plan. Public road connections are preferred over private driveways and in STAs driveways are discouraged. However, where driveways are allowed and where land use patterns permit, the minimum access management spacing for driveways is 175 feet (55 meters) or mid-block if the current city block is less than 350 feet (110 meters).

MAXIMUM VOLUME TO CAPACITY RATIOS OUTSIDE METRO[A,B,C,D]							
Highway Category	**Inside Urban Growth Boundary**					**Outside Urban Growth Boundary**	
	STA[D]	**MPO**	**Non-MPO Outside of STAs where non-freeway posted speed <= 35 mph, or a Designated UBA**	**Non-MPO outside of STAs where non-freeway speed > 35 mph**	**Non-MPO where non-freeway speed limit >= 45 mph**	**Unincorporated Communities**	**Rural Lands**
Interstate Highways[E]	N/A	0.80	N/A	0.70	0.70	0.70	0.70
Statewide Expressways	N/A	0.80	0.70	0.70	0.70	0.70	0.70
Freight Route on a Statewide Highway	0.85	0.80	0.80	0.75	0.70	0.70	0.70
Statewide (not a Freight Route)	0.90	0.85	0.85	0.80	0.75	0.75	0.70
Freight Route on a Regional or District Highway	0.90	0.85	0.85	0.80	0.75	0.75	0.70
Expressway on a Regional or District Highway	N/A	0.85	N/A	0.80	0.75	0.75	0.70
Regional Highways	0.95	0.85	0.85	0.80	0.75	0.75	0.70
District / Local Interest Roads	0.95	0.90	0.90	0.85	0.80	0.80	0.75

Table 6: Maximum volume to capacity ratios for peak hour operating conditions

Notes for Table 6

[A] OHP Amendment 00-04 established alternative mobility standards for Portland Metro and the Rogue Valley MPO (RVMPO). For Metro, see Table 7, below. For RVMPO see note B, below and the OHP amendment establishing the RVMPO alternative standards located on the web at: *http://www.oregon.gov/ODOT/TD/TP/docs/orhwyplan/registr/0004.pdf* . Where there is a conflict between the Table 6 standards and the established alternative mobility standards, the more tolerant standard (higher v/c ratio) applies.

[B] The maximum volume to capacity ratio at the Northbound and Southbound off-ramps of the South Medford Interchange is >1.0 for four hours daily until the new South Medford Interchange is constructed. The maximum v/c ratio at Highway 99 at Stewart Avenue is >1.0 for two hours daily. When the new interchange is completed, the mobility standards for the ramps will be those in Table 6.

[C] For the purposes of this policy, the peak hour shall be the 30th highest annual hour. This approximates weekday peak hour traffic in larger urban areas.

[D] Interstates and Expressways shall not be identified as Special Transportation Areas.

[E] National Highway System (NHS) highway design requirements are addressed in the Highway Design Manual (HDM).

[17] Table 6 was replaced in August 2005, part of OHP Amendment 05-16.

Table 18: Minimum Spacing Standards Applicable to Non-Freeway Interchanges with Two-Lane Crossroads

Category of Mainline	Type of Area	Speed of Mainline	Spacing Dimension				
			B	C	X	Y	Z
Expressways, Statewide, Regional and District Highways	Fully Developed Urban	45 mph (70 kph)	2640 ft (800 m)	1 mi (1.6 km)	750 ft (230 m)	1320 ft. (400 m)	990 ft. (300 m)
	Urban	45mph (70 kph)	2640 ft. (800 m)	1 mi. (1.6 km)	1320 ft. (400 m)	1320 ft. (400 m)	1320 ft. (400 m)
	Rural	55 mph (90 kph)	1 mi (1.6 km)	2 mi (3.2 km)	1320 ft. (400 m)	1320 ft. (400 m)	1320 ft (400 m)

Notes:

1) If the crossroad is a state highway, these distances may be superseded by the Access Management Spacing Standards, providing the distances are greater than the distances listed in the above table.
2) No four-legged intersection may be placed between ramp terminals and the first major intersection.
3) Use four-lane cross road standards for urban and suburban locations that are likely to be widened.
4) No at-grade intersections are permitted between continuous interchanges less than 5 miles apart.

Notes for Figure 20:

B = Distance between the start and end of tapers.

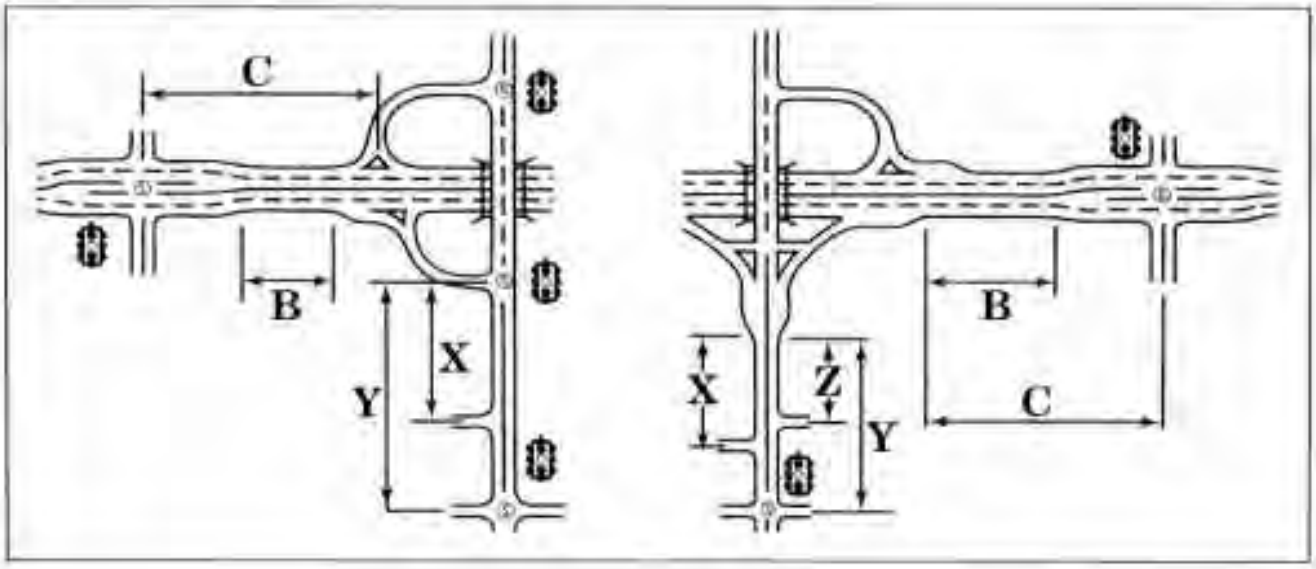
C = Distance between nearest at-grade and ramp terminal intersections or the end/start of the taper section.

X = Distance to first approach on the right, right in/right out only.

Y = Distance to first intersections where left turns are allowed.

Z = Distance between the last right in/out approach road and the start of the taper for the on-ramp.

Figure 20: Measurement of Spacing Standards for Table 18



2. Statewide Highways (NHS)

(Examples: Oregon Route 58, Oregon Route 42, US Route 30, US Route 97, and US Route 20)

a. Rural Expressways

- Expressways are to be designated by action of the Oregon Transportation Commission. (See Action 1A.2.)
- Expressways are existing two lane and multi-lane highways or planned highways that provide for safe and efficient high speed and high volume traffic movements.
- Private access is discouraged.
  - There is a long-range plan to eliminate, as possible, existing approach roads as opportunities occur or alternate access becomes available.
  - Access rights will be purchased and a local road network may be developed consistent with the function of the roadway.
- Public road connections are highly controlled and must be spaced appropriately. Future grade separations (interchanges) may be an option. Compatible land use actions may be necessary and shall be included in local comprehensive plans.
- Traffic signals are discouraged.
- Nontraversible medians must be constructed in the modernization of all multi-lane Expressways that have traversible medians.
- Parking is prohibited.
- The primary function of Expressways is to provide connections to larger urban areas, ports and major recreation areas with minimal interruptions.

b. Other Rural Highways[21]

- Statewide Rural Highways provide for high speed, continuous flow and through traffic movement.
- Direct access to the abutting property is a minor objective.

[21] Nomenclature for highways with no special designations ("other") has been changed here and throughout this section for consistency with Policy 1B changes made August 17, 2005, Amendment 05-16.

Table 8
Polk County Road Standards[1,2,3]

Functional Classification	Right-of-Way Urban/Rural	Developed Roadway Urban/Rural	Parking Urban/Rural	Bikeway Urban/Rural
Major Arterial	84 feet/N/A	70 feet/N/A	No/N/A	Bike Lane/N/A
Minor Arterial	68 feet/60 feet	44 feet/44 feet	No/No	Bike Lane/Shared Roadway
Major Collector	68 feet/60 feet	44 feet/36 feet	No/No	Bike Lane/Shared Roadway
Minor Collector	64 feet/60 feet	44 feet/30 feet	Yes/No	None/None
Resource Road	N/A	N/A	No	N/A/None
Local	60 feet/60 feet	44 feet/22 feet	Yes/Yes	None/None
Cul-de-Sac	60 feet/60 feet	34 feet/22 feet	Yes/No	None/None

(Source: Polk County Road Standards and Subdivision Ordinance)

[1] Within the UGB, the applicable city's standards apply.
[2] Roads which are designated as bike routes shall have a minimum of 4 foot paved shoulders, and the shared shoulder bikeway shall prevail.
[3] When volumes on county road exceed 1,000 ADT, shoulder bikeways will be used instead of shared roadway bikeways.

Access Management

Roads perform two basic functions—access to property for local traffic and allowing transit of through traffic. The functional classification of a road gives a clue as to its primary function. At the upper level, arterials are intended to primarily serve the through traffic, and at the lower end, local roads are intended to provide access to property. Collectors generally serve both purposes.

Since the majority of roads evolved from beginnings as local roads to a higher level of classification as an area grew, it is often difficult to attain the desired purpose without some reduction of service to residential, industrial, or commercial areas. A state highway which serves as the main street for a small town is often used for short trips and access to local businesses, industry, or even residences. But with increased traffic on the highway from growth in and/or out of the city, efficient service for both local and through travel becomes more and more difficult to attain. Lack of access management and insufficient coordination of land uses along the highway contribute to the degradation of the road network. Desire for traffic signals, new road approaches and driveways decrease speed and capacity while increasing both congestion and hazards. It has been estimated that the addition of a traffic signal will result in an almost automatic degradation of a road's level of service by one level.

Overall, access management is controlling vehicular access to a road. The simplest form of "management" is access denial which prohibits new accesses onto a major roadway. A related method of management is controlling where accesses are placed. Other forms include restricting left turns onto a highway, or not allowing cross traffic at intersections. Limits such as these provide a higher vehicle capacity on the major highway, which in turn allows higher speeds

without requiring construction of additional traffic lanes. For several years, the state has placed access limits on its highway system. **Table 9** shows these limits for the state highways in Polk County.

On the majority of Polk County roads, congestion is not now, or for the next twenty years expected to be a problem. Therefore, access management has traditionally been to ensure safety, and Polk County's road permit process is primarily to satisfy that purpose.

The county access management program differentiates requirements based upon functional classification. The general requirement for locating accesses is that they shall be provided in a manner and location that shall protect public safety. In addition to the general requirement, the following standards govern accesses onto county roads:

- Every dwelling shall have access to a public road or an easement. An easement for access to two or more dwelling units on lots established after November 13, 1970 shall be at least 60 feet wide. (Polk County Zoning Ordinance)
- The maximum number of access points from a lot or parcel in an adopted Urban Growth Boundary is one, but no more than 40 percent of the frontage shall be used for the access. This standard does not apply to "flag lots" or lots or parcels located on a cul-de-sac which have less than 50 feet of road frontage. (Polk County Road Standards)
- The maximum number of access points from a lot or parcel outside an adopted Urban Growth Boundary is two. However, additional access points may be permitted by the Public Works Director. (Polk County Road Standards)
- The spacing for driveway accesses is dependent on minimum stopping sight distance, and varies from 125 feet at speeds of 20 mph to 525 feet at speeds of 60 mph. For intersections, the spacing distance ranges from 200 at speeds of 20 mph to 575 feet at speeds of 60 mph. Refer to the Polk County Road Standards for further details.
- For access distances within a UGB, the applicable city's standard shall apply. For ease of reference, they are repeated in **Table 9**. However, a permit applicant and/or permit approval authority should periodically review the standards with the city to ensure currency.

Table 9
Access Management Standards
State Highways

Access Category & Hwy.	Level of Importance[1]	Section (Urban/ Rural)	Intersection				Signal Spacing[4]	Median Control
			Public Road		Private Drive[3]			
			Type[2]	Spacing	Type	Spacing		
Cat. 3 Hwy. 18/22	Statewide	U	At grade/intch	1/2-1 mile	Right Turn	800 feet	1/2-1 mile	Partial
		R	At grade/intch	1-3 mile	Right Turn	1200 feet	None[5]	Partial[6]
Cat. 4 Hwy.99	Statewide/ Regional	U	At grade/intch	1/4 mile	Left & Right Turns	500 feet	1/2 mile	Partial/ None[7]
		R	At grade/intch	1 mile	Left & Right Turns	1200 feet	None[5]	Partial/ None[7]
Cat. 5 Hwy. 221	Regional/ District	U	At grade	1/4 mile	Left & Right Turns	300 feet	1/4 mile	None
		R	At grade	1/2 mile	Left & Right Turns	500 feet	1/2 mile	None
Cat. 6 Hwy. 51/223	District	U	At grade	500 feet	Left & Right Turns	150 feet	1/4 mile	None
		R	At grade	1/4 mile	Left & Right Turns	300 feet	1/2 mile	None

Source: 1991 Oregon Highway Plan

1 Level of Importance is an indicator of the area a highway is primarily to serve. It will generally correspond to certain access categories. When the access category is higher than the level of importance, existing levels of access control will not be reduced.

2 Type indicates an allowable intersection design option. The table above lists the basic options.

3 Private Drives:
a. Generally, no signals will be allowed at private access points on statewide and regional highways.
b. Allowed moves may be more restrictive than shown.

4 Signals should be spaced to minimize delay and disruptions to through traffic.

5 In some instances, signals may need to be required, but only after examining other options. Additionally, long range plans should find ways to eliminate the need for the signal in the future.

6 Partial median control will allow some breaks in the physical barrier, but only if no deterioration of highway operation will result.

7 Median barriers can be interspersed with segments of continuous left turn lanes.

112.175. ACCESS ONTO ARTERIALS.

(A) The number of access points onto arterial roads from any development shall be minimized whenever possible through the use of driveways common to more than one development, and interior circulation design, including frontage or marginal access roads, which further this requirement. Generally, no driveway or County or public road access will be permitted onto the rural portions of State Highways 18, 22, 51, 99W, 221, and 223 unless the following standards are met:

State Highway Access Distance

Access Type	Distance From Nearest Access Point					
	Hwy 18	Hwy 22	Hwy 51	Hwy 99W	Hwy 221	Hwy 223
Driveway	1,200 feet[1]	1,200 feet	500 feet	1,200 feet	500 feet	300 feet
County or Public Use Road	1-3 miles	1–3 miles	.5 mile	1 mile	.5 mile	.25 mile

[1] Right turn only access permitted

(B) Access onto arterials will require the approval, through the permit process, from the Oregon Department of Transportation. The applicant(s) will need to follow ODOT's construction requirements for that portion of the access within state-owned right-of-way.

(C) Where property, such as a reverse frontage lot, is located abutting a county or public use road, and a state highway, the preferred access will be onto the county or public use road. **[Adopted by Ordinance #98-5, dated July 8, 1998.]**

734-051-0155

Access Management Plans, Access Management Plans for Interchanges, and Interchange Area Management Plans

(1) The Department encourages the development of Access Management Plans, Access Management Plans for Interchanges, and Interchange Area Management Plans to maintain highway performance and improve safety by improving system efficiency and management before adding capacity consistent with the 1999 Oregon Highway Plan.

(2) Access Management Plans and Access Management Plans for Interchanges are developed for a designated section of highway with priority placed on facilities with high volumes or providing important statewide or regional connectivity where:

(a) Existing developments do not meet spacing standards;

(b) Existing development patterns, land ownership patterns, and land use plans are likely to result in a need for deviations; or

(c) An access management plan would preserve or enhance the safe and efficient operation of a state highway.

(3) Access Management Plans and Access Management Plans for Interchanges may be developed:

(a) By the Department;

(b) By local jurisdictions; or

(c) By consultants.

(4) Access Management Plans and Access Management Plans for Interchanges comply with all of the following:

(a) Are prepared for a logical segment of the state highway and include sufficient area to address highway operation and safety issues and development of adjoining properties including local access and circulation.

(b) Describe the roadway network, right-of-way, access control, and land parcels in the analysis area.

(c) Are developed in coordination with local governments and property owners in the affected area.

(d) Are consistent with any applicable adopted Transportation System Plan, Local Comprehensive Plan, Corridor Plan, or Special Transportation Area or Urban Business Area designation, or amendments to the Transportation System Plan unless the jurisdiction is exempt from transportation system planning requirements under OAR 660-012-0055.

(e) Are consistent with the 1999 Oregon Highway Plan.

(f) Contain short, medium, and long-range actions to improve operations and safety and preserve the functional integrity of the highway system.

(g) Consider whether improvements to local street networks are feasible.

(h) Promote safe and efficient operation of the state highway consistent with the highway classification and the highway segment designation.

(i) Consider the use of the adjoining property consistent with the comprehensive plan designation and zoning of the area.

(j) Provide a comprehensive, area-wide solution for local access and circulation that minimizes use of the state highway for local access and circulation.

(k) Are approved by the Department through an intergovernmental agreement and adopted by the local government, and adopted into a Transportation System Plan unless the jurisdiction is exempt from transportation system planning requirements under OAR 660-012-0055.

(l) Are used for evaluation of development proposals.

(m) May be used in conjunction with mitigation measures.

(5) The Department encourages the development of Interchange Area Management Plans to plan for and manage grade-separated interchange areas to ensure safe and efficient operation between connecting roadways.

(a) Interchange Area Management Plans are developed by the Department and local governmental agencies to protect the function of interchanges by maximizing the capacity of the interchanges for safe

movement from the mainline facility, to provide safe and efficient operations between connecting roadways, and to minimize the need for major improvements of existing interchanges;
(b) The Department will work with local governments to prioritize the development of Interchange Area Management Plans to maximize the operational life and preserve and improve safety of existing interchanges not scheduled for significant improvements; and
(c) Priority should be placed on those facilities on the Interstate system with cross roads carrying high volumes or providing important statewide or regional connectivity.
(6) Interchange Area Management Plans are required for new interchanges and should be developed for significant modifications to existing interchanges consistent with the following:
(a) Should be developed no later than the time an interchange is designed or is being redesigned;
(b) Should identify opportunities to improve operations and safety in conjunction with roadway projects and property development or redevelopment and adopt strategies and development standards to capture those opportunities;
(c) Should include short, medium, and long-range actions to improve operations and safety in the interchange area;
(d) Should consider current and future traffic volumes and flows, roadway geometry, traffic control devices, current and planned land uses and zoning, and the location of all current and planned approaches;
(e) Should provide adequate assurance of the safe operation of the facility through the design traffic forecast period, typically 20 years;
(f) Should consider existing and proposed uses of the all property in the interchange area consistent with its comprehensive plan designations and zoning;
(g) Are consistent with any adopted Transportation System Plan, Corridor Plan, Local Comprehensive Plan, or Special Transportation Area or Urban Business Area designation, or amendments to the Transportation System Plan unless the jurisdiction is exempt from transportation system planning requirements under OAR 660-012-0055;
(h) Are consistent with the 1999 Oregon Highway Plan; and
(i) Are approved by the Department through an intergovernmental agreement and adopted by the local government, and adopted into a Transportation System Plan unless the jurisdiction is exempt from transportation system planning requirements under OAR 660-012-0055.
Stat. Auth.: ORS 184.616, 184.619, 374.310, 374.312 & 374.345; Ch. 972 & Ch. 974, OL 1999
Stats. Implemented: ORS 374.305 to 374.345 & 374.990; Ch. 974, OL 1999, Ch. 371, OL 2003
Hist.: TO 4-2000, f. 2-14-00, cert. ef. 4-1-00; HWD 2-2004, f. 2-18-04, cert. ef. 5-1-04, Renumbered from 734-051-0360

APPENDIX D

Crash and Operational Data (Existing and Future Conditions)

This appendix includes a technical memorandum analyzing safety and operations data for OR 22 (W). Also, attached are the raw traffic count data at intersections in the study area.

OR 22 West (Derry Overcrossing to Doaks Ferry Road) Expressway Management Plan -- Task 2 - Existing and Future Transportation Conditions

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DATE: April 18, 2008

PROJECT NUMBER: 356019.01.02

Executive Summary

Task 2 of the OR 22 (W) Expressway Management Plan for the segment located between Derry Overcrossing (MP 16.94) and Doaks Ferry Road (MP22.04) of the highway is divided into Tasks 2A and 2B. Task 2A examined the existing operational, safety and access conditions and Task 2B examined year 2030 operational conditions for the study area mentioned above.

Historical data and background planning documents provided by the Oregon Department of Transportation (ODOT) were reviewed and compared to the existing traffic conditions. The documents reviewed included:

- The September and August 2001 Willamette River Bridges to Greenwood Rd OR 22 Expressway Refinement Plan
- 1999 Oregon Highway Plan
- Oregon Administrative Rules Access Spacing Standards (OAR 734-051-0115)

The operational evaluation for Task 2A included traffic analyses for the existing traffic conditions for 3 segments and 12 unsignalized intersections along the highway.

Base year volume analysis was conducted using the Sychro model. The results of the analysis show that 3 of the 12 intersections analyzed currently fail and that the segment of OR 22 east of OR 51 experiences higher traffic volumes in the westbound direction resulting in a volume-to-capacity ratio that is at the 0.70 standard. West of OR 51, traffic volumes drop to a level that results in a significantly lower mainline volume-to-capacity ratio.

The safety evaluation for Task 2A included analysis of crash types and calculations of crash rates along OR 22 for the years 2002 through 2006. (The memo of 5/9/07 with 2001-2005 data has been updated.) The results of crash types analysis show high rear-end and angle/turning type crashes in the general vicinity of the intersection of OR 22/Independence Highway, which made it a top 10 percent Safety Priority Index System (SPIS) site for 2004-2006. The OR 22/51 and OR 22/Doaks Ferry Road intersections were listed in the top 5 percent SPIS sites for the years 2003-2005.

The 5-year average crash rates for the segments of OR 22 from the west-end of the study area to the SKATS urban study area (Oak Grove Road) and from the urban study area boundary to the eastern-end of the study area are 0.36 and 0.65 crashes per million vehicle miles, respectively. These crash rates are well below the 5-year statewide average crash rate for other freeways/expressways.

The existing access spacing along OR 22 within the study area was examined to determine whether or not the Oregon Administrative Rule (OAR 734-051-0115) spacing standards are met. Currently, none of the existing access spacing along OR 22 within the study area met the OAR access spacing standards.

The operational evaluation for Task 2B included developing year 2030 design hour volumes and conducting traffic analysis of these volumes for the No-Build condition of the study locations that were evaluated in Task 2A. The process used in developing and analyzing future year design hour volumes is described under Task 2B in this report.

OR 22 segments east of OR 51 and 10 of the 12 intersections evaluated are projected to exceed ODOT's capacity standard in the year 2030. The westbound OR 22 west of OR 51 is also expected to exceed ODOT's capacity. Capacity improvements for the failed segments and intersections will be discussed under Task 5 of this study.

Task 2A – Existing Traffic Conditions

The purpose of this task is to document the existing traffic conditions for the OR 22 (Willamina-Salem Highway) study corridor located between the Derry Overcrossing and Doaks Drive. The following discussion documents the data collection, study methodology and the findings of the operational analysis for the year 2007 existing traffic conditions.

Existing Traffic Volumes

Within the OR 22 study corridor, there are a number of intersecting roadways that include small local streets serving small business and rural homes located outside of the Salem city limits. In addition, there are larger arterials that provide regional access to rural properties and one other state highway (OR 51) that provide regional access to other nearby communities in Polk County. Based on discussions with ODOT staff, a number of these intersections are critical from the perspective of either providing access to adjacent properties or serving as local/regional connectors. As such, traffic data were gathered for the following intersections in developing the OR 22 Expressway Management Plan:

1. OR 22 / Rickreall Road
2. OR 22 / Oak Knoll Golf Course Driveway
3. OR 22 / N. Oak Grove Road
4. OR 22 / S. Oak Grove Road

5. OR 22 / OR 51
6. OR 22 / 52nd Avenue
7. OR 22 / 50th Avenue
8. OR 22 / Eola Bend RV Park Access
9. OR 22 / Mill Street
10. OR 22 / Shaw Street
11. OR 22 / College Drive

To assess the existing conditions at the intersections listed above, manual turning movement counts (3:00 – 6:00 p.m.) were obtained during typical mid-week days in March 2007. In addition to these new traffic counts, historical April 2006 traffic counts were obtained from ODOT staff at the following three intersections:

- OR 22/Greenwood Road
- OR 22/OR 51
- OR 22/Doaks Ferry Road

Given the historical nature of the three 2006 traffic counts, an analysis was performed to determine if any growth adjustments were necessary to reflect upstream and downstream volumes at the more recent 2007 study area traffic counts. From this analysis, it was found that there was no significant increase in traffic volumes that would warrant artificial growth adjustments. Accordingly, a cumulative assessment of all study area traffic counts revealed 4:30 – 5:30 p.m. to be the system peak hour. The traffic count sheets are provided in Attachment A.

Seasonal Variation Adjustment/30th Hour

It is recognized that certain highways in Oregon are prone to traffic volume fluctuations due to the effects of seasonal variation. Typically, the summer months experience higher traffic volumes due to additional traffic from recreation enthusiasts and vacationers, while non-summer months tend to experience lower traffic volumes. Using the methodology outlined by ODOT's Transportation Planning Analysis Unit, a seasonal adjustment factor of 1.09 was calculated for movements along the OR 22 study corridor, 1.07 for movements along the OR 51 corridor, and 1.06 for movements off of the remaining side-street study intersections[1]. These adjustment factors were applied to the weekday p.m. peak hour intersection turning movement counts to represent the 30th highest hour volume, or the base year volume. After accounting for seasonal variation in traffic, the adjusted turning movement counts were balanced and rounded to the nearest five vehicles per hour as shown in Figure 1. This figure is provided in Attachment B

Study Methodology

A Synchro model was constructed for the study corridor using the roadway geometries and the adjusted 30th hour traffic volumes. This model was used to assess existing operations along the study corridor.

[1] Located within the study corridor is the Oak Knoll Permanent Automatic Traffic Recorder Station (27-006). Based on a historical review of average weekday traffic volumes, a seasonal adjustment factor of 1.09 was calculated for the OR 22 corridor. For OR 51, there is no representative ATR station nearby. Accordingly, the Seasonal Trend Methodology was utilized to generate a seasonal adjustment factor of 1.07. Finally, a fairly conservative adjustment factor of 1.06 was applied to all remaining movements on non ODOT highways to remain consistent with previous planning studies along the study corridor.

To ensure that the analyses are based on a worst-case scenario, the peak 15-minute flow rates during the peak hours were used in the evaluation of all intersection levels of service. For this reason, the analyses reflect conditions that are only likely to occur for the worst 15 minutes out of each typical peak hour. Traffic conditions during all other weekday time periods and throughout the weekend will likely operate under better conditions than described in this report. A summary of the existing lane configurations and traffic control devices are shown in Figure 2. The traffic operations summary worksheets and figures for the study intersections are also provided in Attachment B.

Performance Measures

The 1999 Oregon Highway Plan (OHP) outlines specific performance measures to be maintained along ODOT facilities as part of their Highway Mobility Standards. These standards are aimed at maintaining mobility along important road corridors and vary according to functional classification, location, and role within the National Highway System (NHS).

The following intersection performance measures are applicable for facilities within this study:

- Volume-to-capacity ratio of 0.70 for movements along OR 22 given its classification as a Statewide, NHS Expressway.
- Volume-to-capacity ratio of 0.80 for all movements along OR 22 that must stop or yield the right-of-way.

Traffic Operations Analysis

Unsignalized Intersection Analysis

All of the intersections along the OR 22 study corridor are currently unsignalized. For unsignalized intersections, the operations assessment is typically based on the intersection's ability to accommodate the worst or critical movement. This is typically the minor-street stop-controlled movement.

Table 1 provides a summary of the 12 stop-controlled or yield controlled intersection movements in order to determine how all of the critical intersection movements are operating during the existing 30th hour conditions.

Although the intersection of OR 22/College Drive is not part of the formal OR 22 study area, data for this intersection are presented in the appendices. The Project Management Team has noted that there is a potential to link Doaks Ferry Road and College Drive; thus, traffic counts were collected at OR 22/College Drive because this intersection may be a part of solutions for the study area.

The traffic operations summary worksheets and figures for the study intersections are provided in Attachment B.

Table 1. Year 2007 Existing Traffic Conditions, 30th Hour Traffic Volumes

Intersection	Direction	V/C Ratio	Adequate?
OR 22 / Greenwood Road	OR 22 EB Left-turn	0.01	Yes
	OR 22 WB Left-turn	0.06	Yes
	NB Approach	0.08	Yes
	SB Approach	0.19	Yes
OR 22 / Rickreal Road	NB Right-turn	0.04	Yes
OR 22 / Old Knoll GC DW	OR 22 EB Left-turn	0.01	Yes
	SB Approach	0.36	Yes
OR 22 / Oak Grove Road	OR 22 EB Left-turn	0.02	Yes
	SB Approach	0.28	Yes
OR 22 / S. Oak Grove Road	OR 22 WB Left-turn	0.03	Yes
	NB Approach	0.12	Yes
OR 22 / OR 51	OR 22 EB Left-turn	0.05	Yes
	OR 22 WB Left-turn	1.01	No
	NB Right-turn	0.72	Yes
	NB Through/Left-turn	>2.0	No
	SB Approach	>2.0	No
OR 22 / 52nd Ave	OR 22 EB Left-turn	0.01	Yes
	SB Approach	0.46	Yes
OR 22 / 50th Ave	OR 22 EB Left-turn	0.02	Yes
	OR 22 WB Left-turn	0.01	Yes
	NB Approach	0.01	Yes
	SB Approach	1.06	No
OR 22 / Eola Bend RV Park	OR 22 WB Left-turn	0.04	Yes
	NB Approach	0.47	Yes
OR 22 / Mill Street	OR 22 EB Left-turn	0.02	Yes
	SB Approach	0.10	Yes
OR 22 / Shaw Street	OR 22 EB Left-turn	0.01	Yes
	OR 22 WB Left-turn	0.01	Yes
	NB Approach	0.08	Yes
	SB Approach	0.04	Yes
OR 22 / Doaks Ferry Road	OR 22 EB Left-turn	0.80	Yes
	SB Approach	>2.0	No

As shown in Table 1, all intersections currently operate within acceptable volume-to-capacity ratios with the exception of the OR 22/OR 51, OR 22/50th Avenue, and OR 22/Doaks Ferry Road intersections. At the OR 22/51 intersection, the westbound left-turn, northbound through/left-turn, and shared southbound approach all operate above capacity. At the OR 22/50th Avenue and OR 22/Doaks Ferry Road intersections, the southbound approaches operate above capacity as well. The failing operations at these minor-street movements can be attributed to the heavy traffic demand along the OR 22.

The intersections of OR 22/50TH Avenue and OR 22/Doaks Ferry Road operated within the acceptable mobility standard in the 2001 OR 22 Expressway Refinement Plan.

Mainline Capacity Analysis

Analyses of the mainline volume-to-capacity ratio along three critical segments of OR 22 are provided in Table 2 below. These ratios were calculated using the HCM (Highway Capacity Manual) 2000 Multilane Highways Methodology.

Table 2. OR 22 Mainline Existing 30th Hour V/C Ratios

Segment	Direction	V/C*	Adequate?
Greenwood Road to OR 51	Eastbound	0.32	Yes
	Westbound	0.43	Yes
OR 51 to 50th Avenue	Eastbound	0.38	Yes
	Westbound	0.56	Yes
50th Avenue to Doaks Ferry Road	Eastbound	0.40	Yes
	Westbound	0.57	Yes

* Assumes a free flow speed of 55 mph and a maximum service flow rate of 2,100 pc/h/ln.

As shown in Table 2, the calculated volume-to-capacity ratios for the three critical segments of OR 22 meet the 0.70 performance standard. It should be noted that the segment of OR 22 east of OR 51 experiences higher traffic volumes in the westbound direction resulting in a volume-to-capacity ratio that is proportionally higher than the remainder of the study corridor. This can be attributed to the influence of OR 51. West of OR 51, traffic volumes drop to a level that results in a significantly lower mainline volume-to-capacity ratio. The mainline traffic operations summary worksheets for the three corridor segments are also provided in Attachment B.

Safety Analysis

This safety analysis provides an assessment of vehicular crash history for OR 22 and key intersections along the study area. The study area was divided into three segments to facilitate the crash analysis as shown below.

1. OR 22 from Derry Overcrossing (MP 16.94) to State Farm Road (MP 21.19)
2. OR 22 from State Farm Road (MP 21.19) to Doaks Ferry Road (MP 22.04)
3. OR 51: MP 0.00 to MP 0.25 (beginning at OR 22 and continuing south towards Independence).

Crash data for the most recent 5 years (years 2002 through 2006) available at the time of this analysis were provided by ODOT Crash Analysis Unit. This data was analyzed to calculate

crash rates and identify existing deficiencies and needed improvements to reduce crash rates within the study area.

The following sections summarize the severity and type of crashes for the three segments listed above.

Severity and Type of Crashes for Segment 1

The severity and type of crashes for Segment 1 [OR 22 from Derry Overcrossing (MP 16.94) to State Farm Road (MP 21.19)] are summarized in Table 3. The land use of abutting properties within this segment is mostly farm land.

Table 3. Historical Crash Data 2002–2006 for OR 22 MP 16.94 to MP 21.19

Year	Severity of Crash			Total Crashes	Type of Crash				
	Fatality	Injury	Property Damage		Angle / Turning	Head-On	Rear-End	Fixed Object	Other
2002	0	13	7	20	6	0	2	8	4
2003	1	10	5	16	9	0	6	1	1
2004	0	8	5	13	4	0	5	3	1
2005	0	8	8	16	3	2	7	1	3
2006	0	7	8	15	2	1	7	1	4
Total	1	46	33	80	24	3	27	14	13

Source: ODOT, 2007

Crash reports for the years 2001 through 2005 show a total of 80 crashes on this segment. There were 1 fatal crash (1 percent), 46 injury crashes (58 percent), and 33 property damage only crashes (41 percent).

The most common types of crashes on OR 22 within this segment were angle/turning crashes (30 percent), and rear-end crashes (34 percent). These types of crashes are typical on segments of roadway with high-volume intersections, such as the intersection of OR 22 and OR 51. The majority of crashes on this segment occurred during day light on a dry surface.

The highest concentration (approximately 50 percent) of the turning movement crashes and rear-end crashes within this segment occurred within 500 feet of MP 20.4. This location is in the general vicinity of the intersection of OR 22 and OR 51.

Severity and Type of Crashes for Segment 2

The severity and type of crashes for Segment 2 (OR 22 from State Farm Road to the end of the study area) are summarized in Table 4. This segment is inside the SKATS urban study area.

Table 4. Historical Crash Data 2002–2006 for OR 22 MP 21.19 to MP 22.04

Year	Severity of Crash			Total Crashes	Type of Crash				
	Fatality	Injury	Property Damage		Angle / Turning	Head-On	Rear-End	Fixed Object	Other
2002	0	8	3	11	8	1	2	0	0
2003	0	4	4	8	6	1	1	0	0
2004	0	5	3	8	3	0	1	4	0
2005	0	1	2	3	2	0	1	0	0
2006	0	1	4	5	1	0	3	1	0
Total	0	19	16	35	20	2	8	5	0

Source: ODOT, 2007

Crash reports for the years 2002 through 2006 show a total of 35 crashes on this segment. There were 0 fatal crashes (0 percent), 19 injury crashes (54 percent), and 16 property damage only crashes (46 percent).

The most common types of crashes on OR 22 within this segment were angle/turning crashes (57 percent), and rear-end crashes (23 percent). The majority of crashes occurred during the day on a dry surface.

The highest concentration of the turning movement crashes (approximately 90 percent)and the majority of rear-end crashes within this segment occurred within 500 feet of MP 22.0. This location is in the general vicinity of the intersection of OR 22 and Doaks Ferry Road.

Severity and Type of Crashes for Segment 3

The safety analysis of OR 51 has one segment, beginning at OR 22 and continuing south towards Independence (OR 51, MP 0.00 to MP 0.25).

For the 5-year period, a total of 3 crashes were reported along OR 51 between MP 0.00 and MP 0.25. There was 1 injury crash and 2 crashes resulting in property damage only. Table 5 summarizes the crash history for OR 51 between MP 0.00 and MP 0.25 during the 5-year period.

Table 5. Historical Crash Data 2002–2006 for OR 51 MP 0.00 to MP 0.25

Year	Severity of Crash			Total Crashes	Type of Crash	
	Fatality	Injury	Property Damage		Fixed Object	Other
2002	0	1	1	2	2	0
2003	0	0	1	1	0	1
2004	0	0	0	0	0	0
2005	0	0	0	0	0	0
2006	0	0	0	0	0	0
Total	0	1	2	3	2	1

Source: ODOT, 2007

The most common types of crashes on OR 51 within the study area were fixed-object crashes (67 percent). Two crashes occurred in dry conditions during the day the third crash occurred in icy conditions at night.

Crash Rate Summary

The 5-year average crash rates for segments 1 and 2 were calculated and found to be equal to 0.36 and 0.65 crashes per million vehicle miles respectively. These crash rates are below the statewide average crash rate for other comparable freeways/expressways. See Attachment C for statewide average crash rate and OR 22 crash rate calculations data.

Safety Priority Index System (SPIS)

In addition to crash rates, ODOT also assesses roadway safety via the Safety Priority Index System (SPIS). The SPIS is used to calculate a relative score that takes into account crash frequency, crash rate, and crash severity. SPIS scores are computed for tenth (0.1) of a mile segments. SPIS scores can be compared to determine where safety improvement funds might best be spent. Typically, ODOT places the highest priority locations where SPIS scores fall within the top 10 percent in the entire state.

A roadway segment becomes a SPIS site if a location has three or more crashes; or one or more fatal crashes over a 3-year period.

There are two SPIS locations along OR 22 within the study area. These locations are shown in the top ten percent SPIS locations within the study area. The crash statistics and SPIS scores that are shown in Table 6 are based on crash data for the years 2003 through 2005.

Table 6. Top 10 Percent SPIS Locations within the Study Area (2007)

Highway	Beg. MP	End MP	Length	AADT	Total Crashes	Fatal	A*	B*	C*	PDO	% Rank	SPIS Score
OR 22	20.30	20.42	0.12	29,200	14	0	1	1	5	14	90	45.69

Source: ODOT, 2007 (2004-2006 data)
*Severity of Crashes: A = severe injury; B = moderate injury; C = minor injury

Access Conditions

The study area is designated as an expressway. The purpose of the expressway classification is to maintain mobility by providing for safe and efficient high-speed and high-volume traffic movements. Its primary function is to provide for interurban travel and connections to ports and major recreational areas with minimal interruptions. The existence of multiple access points into the study area represents interruptions or conflict points that hinder the roadway from functioning in the manner intended by the expressway designation. Conflict points are locations along a roadway at which a high user crossing, merging with, or diverging from a road or driveway conflicts with other motorist use the same road or driveway. Drivers make more mistakes and are more likely to have crashes when they are presented with complex driving situations created by numerous conflict points.

One of the most effective strategies for promoting increased safety and improved mobility is to manage access to the highway. Access management involves planning the location, design and operation of driveway, medians and intersections to provide access while, at the same time preserving safety and roadway efficiency. Access management involves:

- Restricting the number of direct access to major surface streets
- Providing reasonable indirect access
- Effectively designing driveways
- Enforcing safe and efficient spacing of driveways to limit the number and locations of conflict points

Currently there are approximately 56 private accesses and 14 public accesses to OR 22 within the study area. None of the access locations meet the applicable OAR access spacing standard for this highway, as shown in Table 7.

Table 7. Access Management Spacing Standards for Private and Public Approaches on Statewide Highways

Posted Speed (5)	Rural Expressway ** (Feet)*	Rural (Feet)*	Urban Expressway ** *** (Feet)*	Urban *** (Feet)*	STA (Feet)*
≥55	5280	1320	2640	1320	
50	5280	1100	2640	1100	
40 & 45	5280	990	2640	990	
30 & 35	770	720	(6)		
≤25	550	520	(6)		

Source: OAR 734-051-0115

NOTE: Refer to explanatory notes that follow Table 3 for the numbers in parenthesis; however, these notes are not relevant to the OR 22 study.
* Measurement of the approach road spacing is from center to center on the same side of the roadway.
** Spacing for Expressway at-grade intersections only. See the OHP for interchange spacing guidelines.
***These standards also apply to Commercial Centers.

Task 2B – Future Traffic Conditions

This memorandum documents the anticipated future 2030 No-Build traffic conditions for the OR 22 (W) Expressway Management Plan (EMP). Included in the memorandum are the travel forecasts and the results of the operational analyses of the future No-Build scenario for the corridor study area between Greenwood Road and Doaks Ferry Road.

Future Growth Forecasts

Future transportation demand estimates for the study area were based on a combination of forecasts from the Salem Keizer Area Transportation Study (SKATS) Transportation Planning Model, ODOT's Future Volume Tables, and a review of growth rates used in previous planning studies along the OR 22 corridor. The No-Build volumes were prepared assuming that no significant transportation improvements are made to the existing study corridor and study area intersections. The lane configurations at each of the study area intersections for the 2030 No-Build analysis are illustrated in Figure 3. This figure is provided in Attachment D.

Travel Forecasts

To forecast 2030 future traffic volumes along the OR 22 study corridor and study area intersections, base year (2005) and future year (2030) model runs were obtained from the SKATS model as an initial starting point. It should be noted that a large portion of the study corridor is on the edge of the SKATS modeling network. As such, not all of the intersecting corridor roadways are included in the model. For those roadways that are included, annual growth rates were calculated using the base year and future year model outputs. These annual growth rates are summarized in Table 8.

Table 8. SKATS Model Annual Growth Rate Calculations

Roadway Segment	Direction of Travel	
	Eastbound / Northbound	Westbound / Southbound
Oak Grove Road (north of OR 22)	13%	4.8%
OR 51 (south of OR 22)	1.1%	1.1%
OR 22 (west of Oak Grove Road)	3.9%	3.9%
OR 22 (east of Oak Grove Road)	3.9%	3.9%
Doaks Ferry Road (north of OR 22)	9.7%	5.9%
OR 22 (west of Doaks Ferry Road)	3.4%	3.5%

As shown in Table 8, annual growth rates along the OR 22 corridor are projected to range from approximately 3.5 percent at the east end of the study corridor to 3.9 percent at the west end of the study corridor. Growth along OR 51 is projected to occur at approximately 1.1 percent per year. Growth along Doaks Ferry Road is projected to be relatively high due to a significant amount of new development expected in the West Salem area. Growth along Oak Grove Road is also projected to be high; however it should be noted that base and future year traffic volumes in the model are still relatively low, which cause the growth rates appear to be more significant than they really are.

In addition to the SKATS model output, ODOT's Future Volume Tables were reviewed. These tables contain ADT values for all state highways and can be used to develop historic growth trends. Based on a review of these tables, annual growth rates of 3.1 percent to 3.6 percent were calculated at different points along the OR 22 study corridor. For OR 51, an annual growth rate of 1.4 percent was calculated along that section of highway just south of OR 22.

Comparing the SKATS model growth rates to the ODOT Future Volume Tables, the two sets of growth rates are relatively similar. As such, a combination of growth rates from the two sources were utilized for the purposes of developing 2030 No-Build traffic volumes along the OR 22 study corridor. Table 9 outlines the resulting 2030 No-Build annual growth rates used for different segments of the study corridor.

Table 9. 2030 No-Build Annual Growth Rates

Roadway Segment	Direction of Travel	
	Eastbound / Northbound	Westbound / Southbound
Oak Grove Road (north of OR 22)	13%	4.8%
OR 51 (south of OR 22)	1.4%	1.4%
OR 22 (west of OR 51)	3.2%	3.2%
OR 22 (east of OR 51)	3.6%	3.6%
Doaks Ferry Road (north of OR 22)	9.7%	5.9%
All other intersecting roadways	2.5%*	2.5%*

* With the exception of the previously noted roadways, the intersecting side streets are not included in the SKATS model. As such, an annual growth rate of 2.5% was applied to be consistent with previous planning efforts.

Because the application of growth rate estimates to turning movement counts can sometimes underestimate/overestimate future traffic volumes, traffic volume forecasts for some intersection turning movements were derived using the procedures outlined in National Cooperative Highway Research Program (NCHRP) Report 2-55. This procedure accounts for a combination of existing turning movement counts, and base and future year model forecasts as outlined below.

- Measured turning movement volumes and patterns are used as a starting point.
- The percentage change in the model's base and future year traffic volume for each movement is calculated.
- The numerical change (delta) in the model's traffic volumes is calculated.
- The results obtained from the percentage and numerical change calculations are averaged to obtain the 2025 analysis traffic volume.

As previously stated, the OR 22 (W) EMP study corridor essentially lies on the edge of the SKATS modeling network. As such, only the regionally significant OR 51 and Doaks Ferry Road segments are included in the model along with OR 22. The above outlined process was applied to the OR 22/OR 51 and OR 22/Doaks Ferry Road intersections. The balanced results of this procedure coupled with the application of the segment growth rate estimates outlined in Table 9 are illstrated in Figure 4. This figure is provided in Attachment D.

Year 2030 No-Build Traffic Operations Analyses

An operational analysis was conducted for the OR 22 study corridor to evaluate the future 2030 No-Build 30th Hour traffic conditions. This analysis was performed using Synchro to analyze the operations at the individual intersections. The OR 22 mainline volume-to-capacity ratios, unsignalized study intersections were analyzed using procedures described in the 2000 Highway Capacity Manual (HCM).

Performance Measures

The Oregon Highway Plan (1999) (OHP) outlines specific performance measures to be maintained along ODOT facilities as part of their Highway Mobility Standards. These standards are aimed at maintaining mobility along important road corridors and vary according to functional classification, location, and role within the National Highway System (NHS).

The following intersection performance measures are applicable for facilities within this study:

- Volume-to-capacity ratio of 0.70 for movements along OR 22 given its classification as a Statewide, NHS Expressway.
- Volume-to-capacity ratio of 0.80 for all movements along OR 22 that must stop or yield the right-of-way.

Unsignalized Intersection Analysis

All of the intersections along the OR 22 study corridor are assumed to remain unsignalized in the year 2030. For unsignalized intersections, the operations assessment is typically based on the intersection's ability to accommodate the worst or critical movement. This is typically the minor-street stop-controlled movement. Table 10 provides a summary of all stop-controlled or yield controlled intersection movements in order to determine how all of the critical intersection movements are operating during the existing 30th hour conditions.

Table 10. Unsignalized Intersection Analysis Results

Intersection	Direction	V/C Ratio	
		Existing 2007 Traffic Conditions	Future 2030 No-Build Traffic Conditions
OR 22 / Greenwood Road	OR 22 EB Left-turn	0.01	0.06
	OR 22 WB Left-turn	0.06	0.33
	NB Approach	0.08	>2.0
	SB Approach	0.19	>2.0
OR 22 / Rickreal Road	NB Right-turn	0.04	0.15
OR 22 / Old Knoll GC DW	OR 22 EB Left-turn	0.01	0.09
	SB Approach	0.36	0.41
OR 22 / Oak Grove Road	OR 22 EB Left-turn	0.02	0.12
	SB Approach	0.28	>2.0
OR 22 / S. Oak Grove Road	OR 22 WB Left-turn	0.03	0.15
	NB Approach	0.12	>2.0
OR 22 / OR 51	OR 22 EB Left-turn	0.05	0.36
	OR 22 WB Left-turn	1.01	>2.0
	NB Right-turn	0.72	>2.0
	NB Through/Left-turn	>2.0	>2.0
	SB Approach	>2.0	>2.0
OR 22 / 52nd Ave	OR 22 EB Left-turn	0.01	0.01
	SB Approach	0.46	0.85
OR 22 / 50th Ave	OR 22 EB Left-turn	0.02	0.23
	OR 22 WB Left-turn	0.01	0.05
	NB Approach	0.01	0.04
	SB Approach	1.06	>2.0
OR 22 / Eola Bend RV Park	OR 22 WB Left-turn	0.04	0.28
	NB Approach	0.47	>2.0
OR 22 / Mill Street	OR 22 EB Left-turn	0.02	0.60
	SB Approach	0.10	>2.0
OR 22 / Shaw Street	OR 22 EB Left-turn	0.01	0.01
	OR 22 WB Left-turn	0.01	0.10
	NB Approach	0.08	0.71
	SB Approach	0.04	1.36
OR 22 / Doaks Ferry Road	OR 22 EB Left-turn	0.80	>2.0
	SB Approach	>2.0	>2.0

Note: Shaded cells represent that the movement is forecast to exceed ODOT's 0.80 performance standard.

The traffic operations summary worksheets for the study intersections are provided in Attachment D.

As shown in Table 10, a projected increase in traffic volumes along the OR 22 corridor will result in a significant number of critical minor street approaches operating well above capacity. In addition, major street left-turns at the more regionally significant OR 22/OR 51 and OR 22/Doaks Ferry Road intersection are also projected to operate above capacity by the year 2030. These operational results are relatively consistent with previous long-term forecasts for the OR 22 study corridor and suggest that intersection improvements and access management techniques will need to be addressed.

Mainline Capacity Analysis

Year 2030 analyses of the mainline volume-to-capacity ratios along three critical segments of OR 22 are provided in Table 11. These ratios were calculated using the HCM (Highway Capacity Manual) 2000 Multilane Highways Methodology.

Table 11. OR 22 Mainline 2030 Future No-Build 30th Hour V/C Ratios

Segment	Direction	V/C*	
		Existing 2007 Conditions	Future 2030 No-Build Conditions
Greenwood Road to OR 51	Eastbound	0.32	0.64
	Westbound	0.43	0.78
OR 51 to 50th Avenue	Eastbound	0.38	0.74
	Westbound	0.56	0.99
50th Avenue to Doaks Ferry Road	Eastbound	0.40	0.76
	Westbound	0.57	1.00

Note: Shaded cells indicate that the highway segment is forecast to exceed to the 0.70 performance standard.
* Assumes a free flow speed of 55 mph and a maximum service flow rate of 2,100 pc/h/ln.

As shown in Table 11, the calculated volume-to-capacity ratios for the three critical segments of OR 22 are projected to operate near or slightly above the 0.70 performance standard in the eastbound direction. In the westbound direction, the segments located east of OR 51 are forecast to operate at or near the effective capacity of the highway. West of OR 51, traffic volumes drop to a level that results in a significantly lower volume-to-capacity ratio. However, the westbound direction is still forecast to operate just above the performance standard. These results indicate that mainline capacity improvements will need to be addressed for particular segments of the study corridor.

Attachment A
Traffic Counts

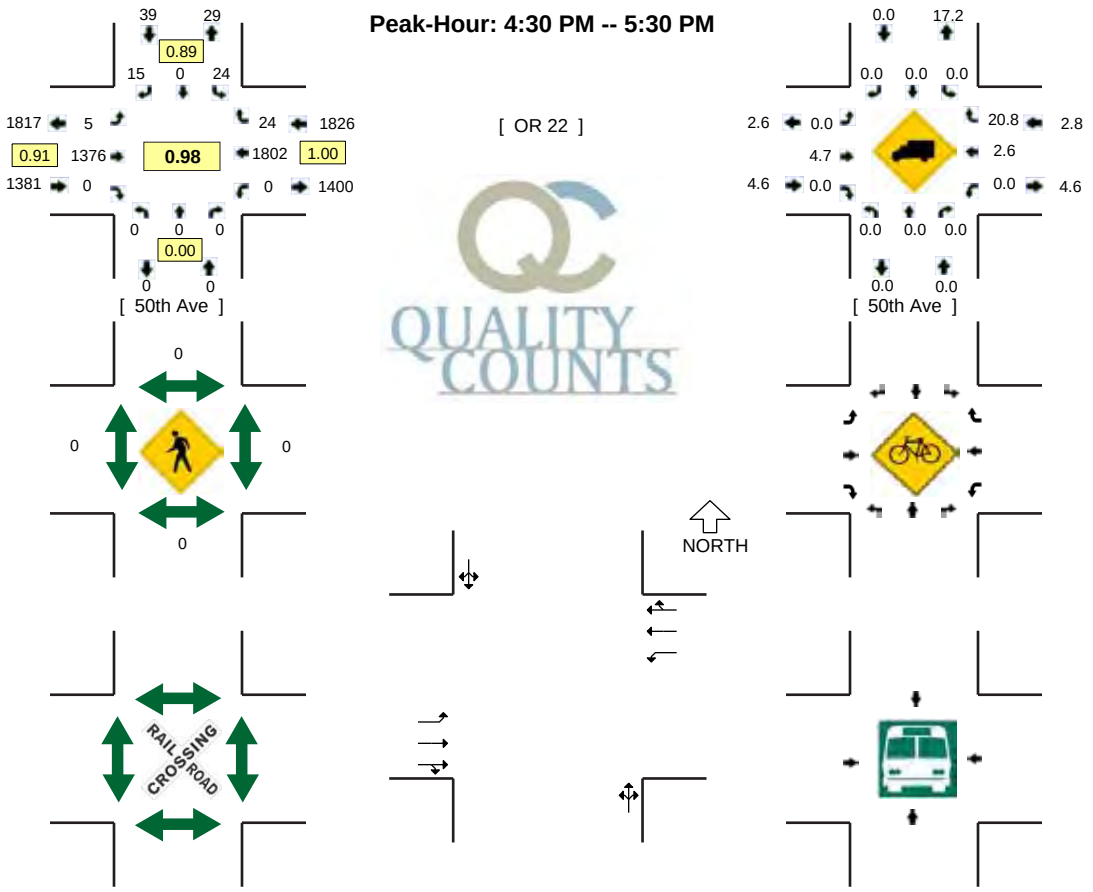
Type of peak hour being reported: User Defined

Method for determining peak hour: Total Entering Volume

INTERSECTION: 50th Ave--OR 22
WEATHER:

QC JOB #: 10236401
DATE: 3/7/2007

Peak-Hour: 4:30 PM -- 5:30 PM



*SEE LEGEND SHEET

5-MIN COUNT PERIOD BEGINNING AT	50th Ave (Northbound)				50th Ave (Southbound)				OR 22 (Eastbound)				OR 22 (Westbound)				TOTAL	HOURLY TOTALS
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
2:00 PM	0	0	1		6	0	1		3	235	0		0	236	1		483	1898
2:15 PM	0	0	0		3	0	1		1	248	0		0	263	1		517	1969
2:30 PM	1	0	2		3	0	1		0	259	0		1	286	3		556	2043
2:45 PM	0	0	1		1	0	4		2	267	0		0	280	3		558	2114
3:00 PM	0	0	0		3	0	2		2	267	0		0	301	3		578	2209
3:15 PM	0	0	0		1	0	2		1	294	0		1	338	5		642	2334
3:30 PM	1	0	2		1	0	1		0	341	0		3	333	4		686	2464
3:45 PM	0	0	1		4	0	2		2	418	0		0	391	5		823	2729
4:00 PM	0	0	1		6	0	3		2	304	0		1	412	4		733	2884
4:15 PM	0	0	0		6	0	2		2	367	0		0	464	5		846	3088
4:30 PM	0	0	0		5	0	6		0	379	0		0	428	7		825	3227
4:45 PM	0	0	0		3	0	3		2	309	0		0	465	9		791	3195
5:00 PM	0	0	0		8	0	5		1	324	0		0	474	4		816	3278
5:15 PM	0	0	0		8	0	1		2	364	0		0	435	4		814	3246
5:30 PM	0	0	0		2	0	2		2	295	0		0	433	2		736	3157
5:45 PM	0	0	0		2	0	4		1	278	0		0	393	4		682	3048
6:00 PM	0	0	0		2	0	0		3	230	0		0	371	1		607	2839
6:15 PM	0	0	0		4	0	1		0	234	0		0	313	4		556	2581
6:30 PM	0	0	0		1	0	0		1	209	0		0	272	3		486	2331
6:45 PM	0	0	0		1	0	1		1	178	0		0	267	1		449	2098
7:00 PM	0	0	0		0	0	0		0	147	0		0	210	1		358	1849
7:15 PM	0	0	0		1	0	0		0	154	0		0	199	2		356	1649
7:30 PM	0	0	0		2	0	0		0	137	0		0	207	4		350	1513
7:45 PM	0	0	0		0	0	2		1	103	0		1	166	2		275	1339

PEAK 15-MIN FLOW RATES	Northbound				Southbound				Eastbound				Westbound				TOTAL
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0		20	0	24		0	1516	0		0	1712	28		3300
Heavy Trucks	0	0	0		0	0	0		0	64	0		0	80	0		144
Pedestrians		0				0				0				0			0
Bicycles																	
Railroad																	
Stopped Buses																	

Counter Comments:

Report generated on 3/19/2007

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

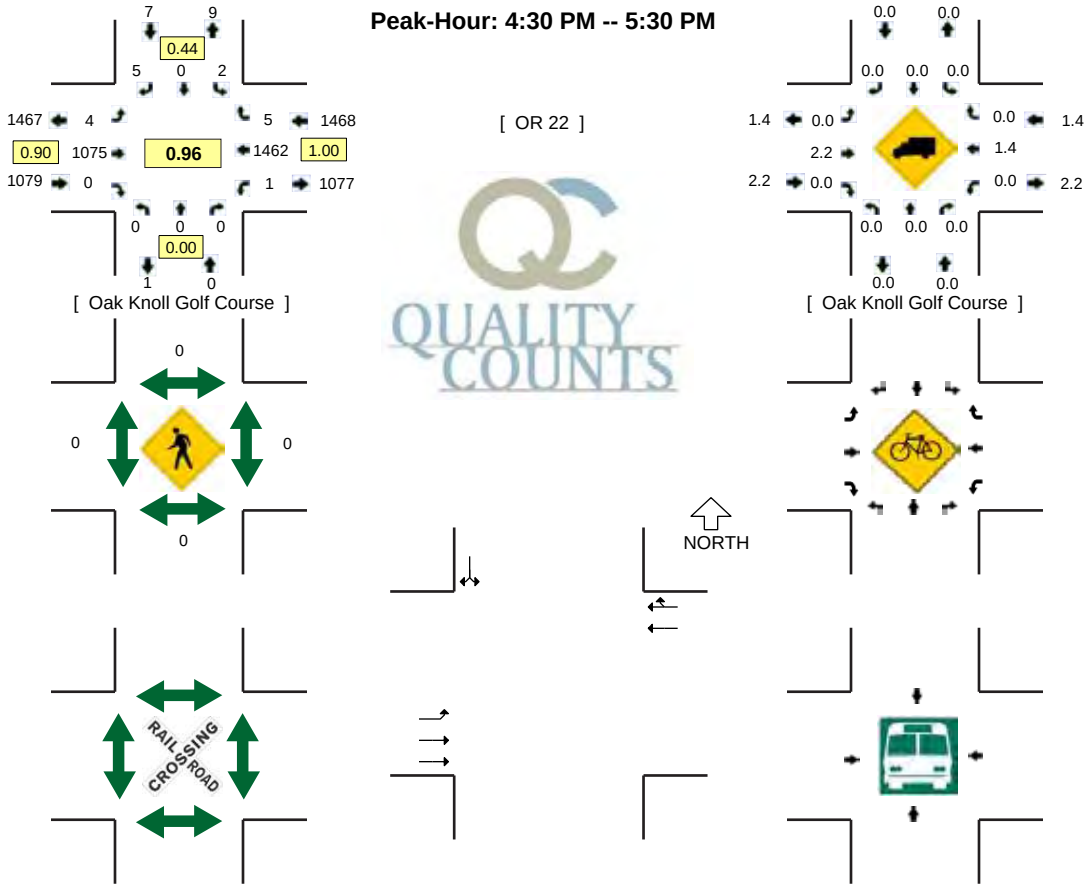
Type of peak hour being reported: User Defined

Method for determining peak hour: Total Entering Volume

INTERSECTION: Oak Knoll Golf Course--OR 22
WEATHER:

QC JOB #: 10236414
DATE: 3/7/2007

Peak-Hour: 4:30 PM -- 5:30 PM



*SEE LEGEND SHEET

5-MIN COUNT PERIOD BEGINNING AT	Oak Knoll Golf Co... (Northbound)				Oak Knoll Golf Co... (Southbound)				OR 22 (Eastbound)				OR 22 (Westbound)				TOTAL	HOURLY TOTALS
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	0	0		1	0	1		0	222	0		0	226	0		450	
3:15 PM	0	0	0		0	0	0		2	222	0		0	287	1		512	
3:30 PM	0	0	0		0	0	0		5	278	0		0	278	2		563	
3:45 PM	0	0	0		1	0	0		3	282	0		0	307	2		595	2120
4:00 PM	0	0	0		2	0	1		2	244	0		0	334	2		585	2255
4:15 PM	0	0	0		4	0	2		3	285	0		0	361	4		659	2402
4:30 PM	0	0	0		2	0	2		1	300	0		1	360	1		667	2506
4:45 PM	0	0	0		0	0	1		0	237	0		0	372	1		611	2522
5:00 PM	0	0	0		0	0	0		3	256	0		0	378	2		639	2576
5:15 PM	0	0	0		0	0	2		0	282	0		0	352	1		637	2554
5:30 PM	0	0	0		1	0	1		0	246	0		0	359	2		609	2496
5:45 PM	0	0	0		3	0	4		1	227	0		0	318	1		554	2439

PEAK 15-MIN FLOW RATES	Northbound				Southbound				Eastbound				Westbound				TOTAL
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0		8	0	8		4	1200	0		4	1440	4		2668
Heavy Trucks	0	0	0		0	0	0		0	20	0		0	36	0		56
Pedestrians		0				0				0				0			0
Bicycles																	
Railroad																	
Stopped Buses																	

Counter Comments:

Report generated on 3/19/2007

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

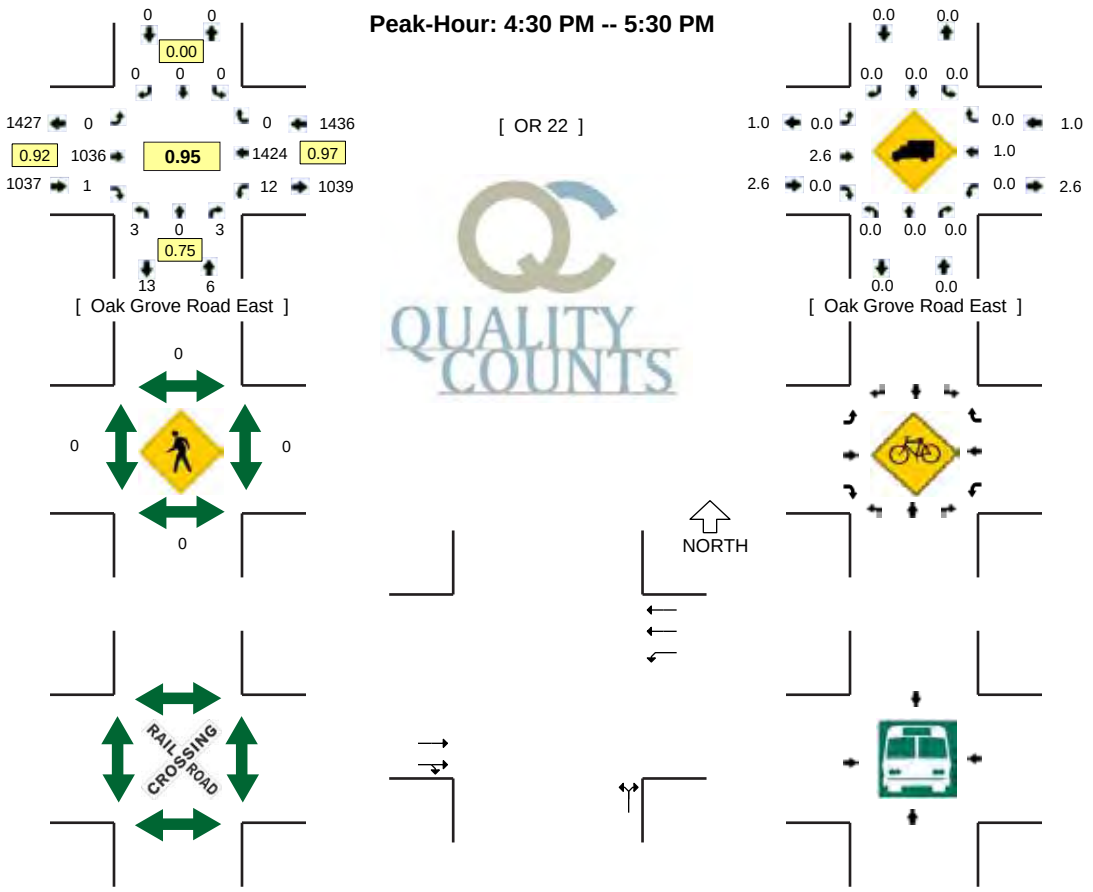
Type of peak hour being reported: User Defined

Method for determining peak hour: Total Entering Volume

INTERSECTION: Oak Grove Road East--OR 22
WEATHER:

QC JOB #: 10236410
DATE: 3/7/2007

Peak-Hour: 4:30 PM -- 5:30 PM



*SEE LEGEND SHEET

5-MIN COUNT PERIOD BEGINNING AT	Oak Grove Road Ea... (Northbound)				Oak Grove Road Ea... (Southbound)				OR 22 (Eastbound)				OR 22 (Westbound)				TOTAL	HOURLY TOTALS
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	0	2		0	0	0		0	216	1		0	227	0		446	
3:15 PM	3	0	1		0	0	0		0	224	0		0	278	0		506	
3:30 PM	0	0	2		0	0	0		0	252	1		1	272	0		528	
3:45 PM	0	0	0		0	0	0		0	277	0		1	301	0		579	2059
4:00 PM	1	0	1		0	0	0		0	231	2		1	324	0		560	2173
4:15 PM	1	0	2		0	0	0		0	280	1		1	331	0		616	2283
4:30 PM	0	0	2		0	0	0		0	282	0		3	332	0		619	2374
4:45 PM	1	0	0		0	0	0		0	235	1		1	348	0		586	2381
5:00 PM	1	0	0		0	0	0		0	237	0		3	379	0		620	2441
5:15 PM	1	0	1		0	0	0		0	282	0		5	365	0		654	2479
5:30 PM	0	0	1		0	0	0		0	224	1		3	366	0		595	2455
5:45 PM	1	0	0		0	0	0		0	225	0		0	337	0		563	2432

PEAK 15-MIN FLOW RATES	Northbound				Southbound				Eastbound				Westbound				TOTAL
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	0	4		0	0	0		0	1128	0		20	1460	0		2616
Heavy Trucks	0	0	0		0	0	0		0	44	0		0	8	0		52
Pedestrians		0				0				0				0			0
Bicycles																	
Railroad																	
Stopped Buses																	

Counter Comments:

Report generated on 3/19/2007

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

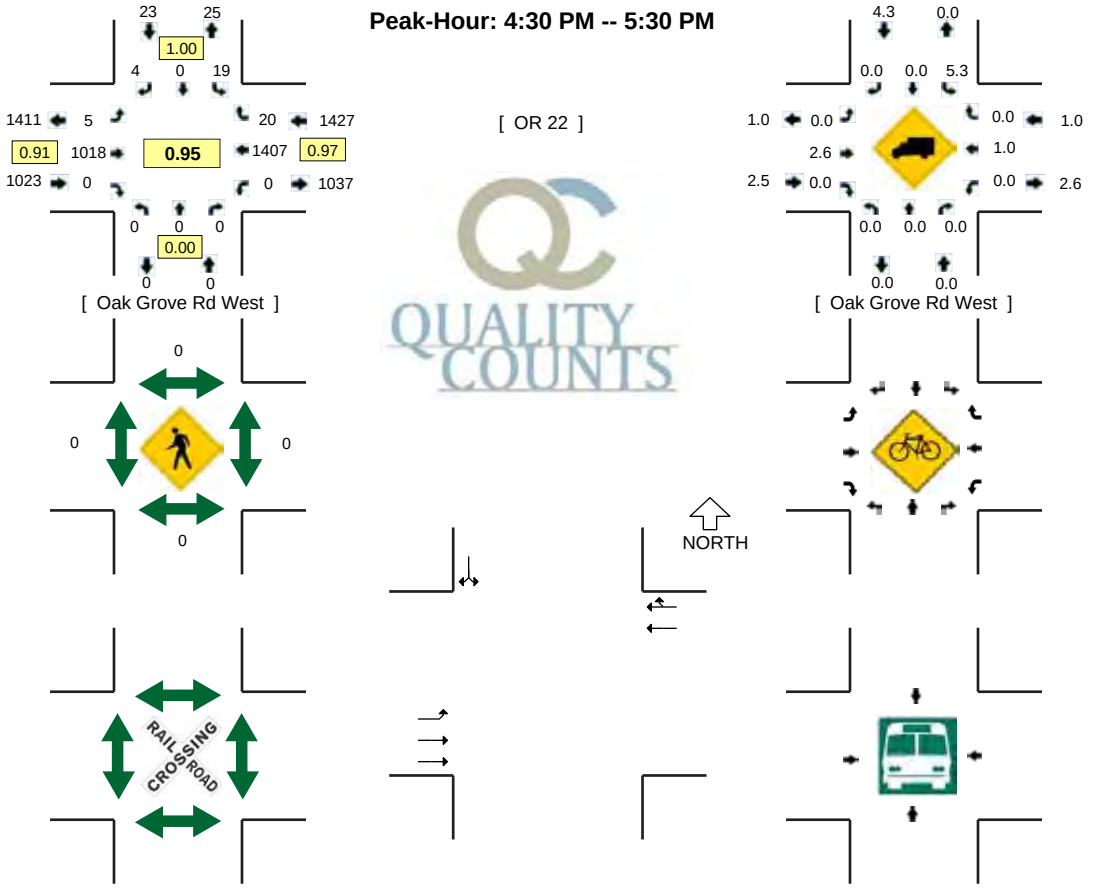
Type of peak hour being reported: User Defined

Method for determining peak hour: Total Entering Volume

INTERSECTION: Oak Grove Rd West--OR 22
WEATHER:

QC JOB #: 10236412
DATE: 3/7/2007

Peak-Hour: 4:30 PM -- 5:30 PM



*SEE LEGEND SHEET

5-MIN COUNT PERIOD BEGINNING AT	Oak Grove Rd West (Northbound)				Oak Grove Rd West (Southbound)				OR 22 (Eastbound)				OR 22 (Westbound)				TOTAL	HOURLY TOTALS
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	0	0		5	0	3		2	212	0		0	223	4		449	
3:15 PM	0	0	0		3	0	4		1	221	0		0	275	6		510	
3:30 PM	0	0	0		5	0	4		2	248	0		0	268	4		531	
3:45 PM	0	0	0		0	0	5		0	277	0		0	297	4		583	2073
4:00 PM	0	0	0		4	0	7		0	229	0		0	318	7		565	2189
4:15 PM	0	0	0		6	0	0		2	275	0		0	327	5		615	2294
4:30 PM	0	0	0		7	0	1		2	275	0		0	326	6		617	2380
4:45 PM	0	0	0		4	0	0		1	232	0		0	345	4		586	2383
5:00 PM	0	0	0		5	0	2		0	232	0		0	374	6		619	2437
5:15 PM	0	0	0		3	0	1		2	279	0		0	362	4		651	2473
5:30 PM	0	0	0		1	0	2		1	224	0		0	362	4		594	2450
5:45 PM	0	0	0		5	0	6		2	220	0		0	332	6		571	2435

PEAK 15-MIN FLOW RATES	Northbound				Southbound				Eastbound				Westbound				TOTAL
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0		12	0	4		8	1116	0		0	1448	16		2604
Heavy Trucks	0	0	0		0	0	0		0	44	0		0	8	0		52
Pedestrians		0				0				0				0			0
Bicycles																	
Railroad																	
Stopped Buses																	

Counter Comments:

Report generated on 3/19/2007

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

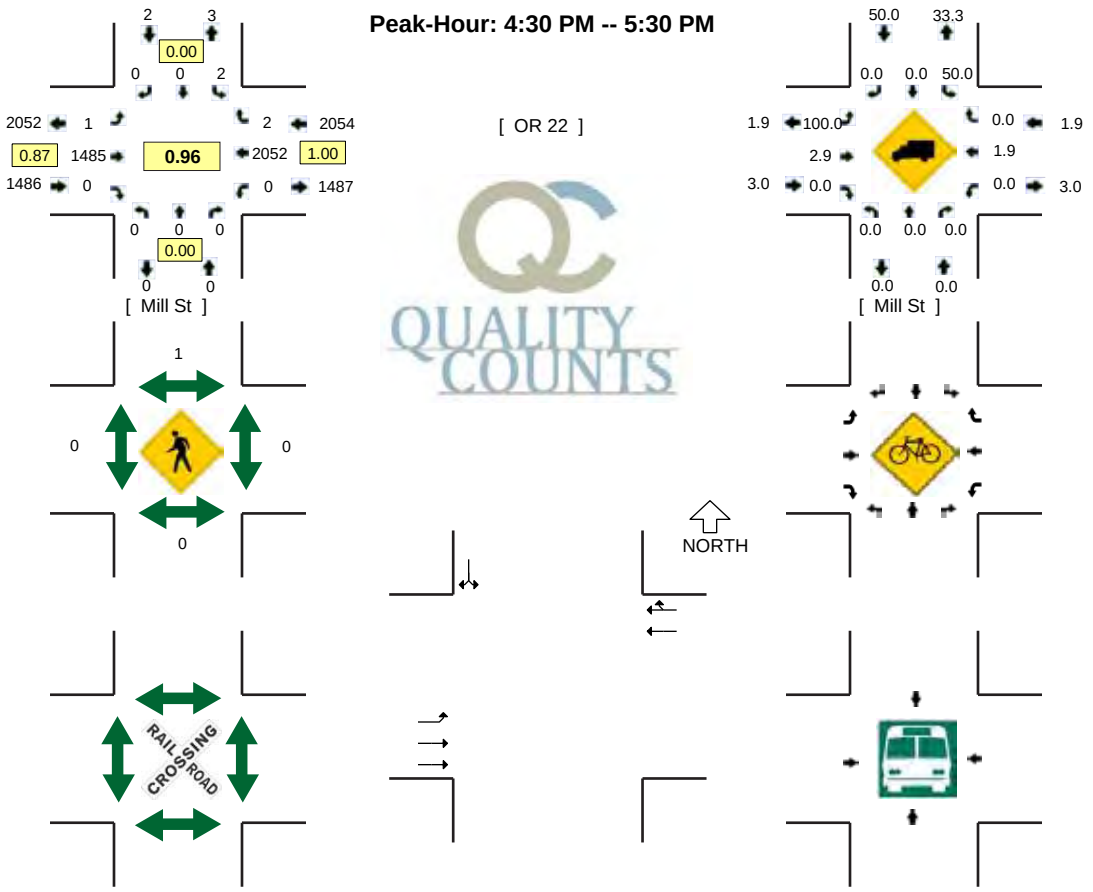
Type of peak hour being reported: User Defined

Method for determining peak hour: Total Entering Volume

INTERSECTION: Mill St--OR 22
WEATHER:

QC JOB #: 10236408
DATE: 3/7/2007

Peak-Hour: 4:30 PM -- 5:30 PM



*SEE LEGEND SHEET

5-MIN COUNT PERIOD BEGINNING AT	Mill St (Northbound)				Mill St (Southbound)				OR 22 (Eastbound)				OR 22 (Westbound)				TOTAL	HOURLY TOTALS
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	0	0		0	1	0		1	274	0		0	314	0		590	
3:15 PM	0	0	0		0	0	0		0	310	0		0	385	0		695	
3:30 PM	0	0	0		0	1	0		0	342	0		0	342	0		685	
3:45 PM	0	0	0		0	3	0		0	447	0		0	422	0		872	2842
4:00 PM	0	0	0		0	2	1		0	324	0		0	455	0		782	3034
4:15 PM	0	0	0		1	0	0		0	378	0		0	480	0		859	3198
4:30 PM	0	0	0		0	0	0		0	425	0		0	499	0		924	3437
4:45 PM	0	0	0		1	0	0		1	323	0		0	525	0		850	3415
5:00 PM	0	0	0		0	0	0		0	344	0		0	515	0		859	3492
5:15 PM	0	0	0		1	0	0		0	393	0		0	513	2		909	3542
5:30 PM	0	0	0		0	0	0		0	307	0		0	471	0		778	3396
5:45 PM	0	0	0		0	0	0		0	293	0		0	441	0		734	3280

PEAK 15-MIN FLOW RATES	Northbound				Southbound				Eastbound				Westbound				TOTAL
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0		0	0	0		0	1700	0		0	1996	0		3696
Heavy Trucks	0	0	0		0	0	0		0	36	0		0	60	0		96
Pedestrians		0				4				0				0			4
Bicycles																	
Railroad																	
Stopped Buses																	

Counter Comments:

Report generated on 3/19/2007

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

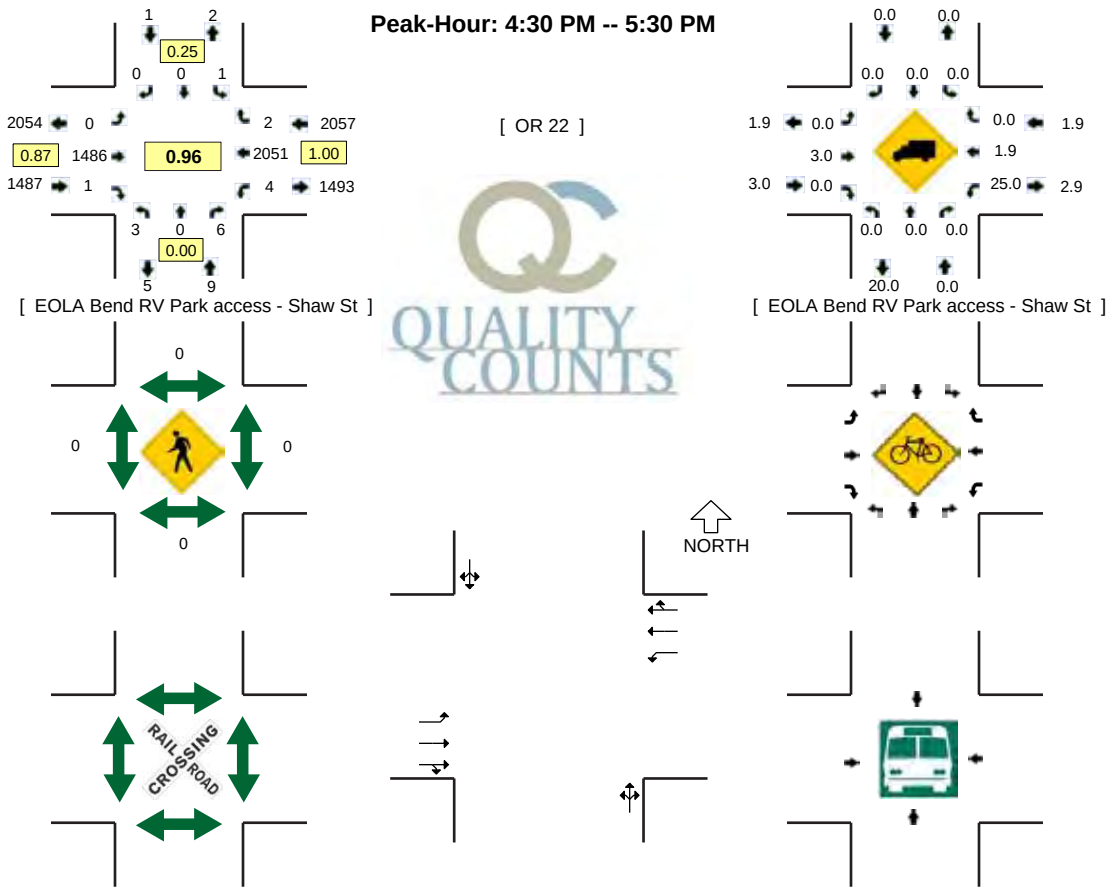
Type of peak hour being reported: User Defined

Method for determining peak hour: Total Entering Volume

INTERSECTION: EOLA Bend RV Park access - Shaw St--OR 22
WEATHER:

QC JOB #: 10236406
DATE: 3/7/2007

Peak-Hour: 4:30 PM -- 5:30 PM



*SEE LEGEND SHEET

5-MIN COUNT PERIOD BEGINNING AT	EOLA Bend RV Park... (Northbound)				EOLA Bend RV Park... (Southbound)				OR 22 (Eastbound)				OR 22 (Westbound)				TOTAL	HOURLY TOTALS
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	0	1		0	0	0		0	274	0		1	314	1		591	
3:15 PM	0	0	1		0	0	0		0	310	0		2	385	2		700	
3:30 PM	0	0	1		0	0	0		0	342	0		1	342	0		686	
3:45 PM	0	0	0		0	0	0		1	445	1		0	422	2		871	2848
4:00 PM	0	0	4		0	0	0		0	320	4		1	455	0		784	3041
4:15 PM	0	0	3		0	0	0		0	379	0		0	480	0		862	3203
4:30 PM	0	0	0		1	0	0		0	424	1		0	499	1		926	3443
4:45 PM	0	0	1		0	0	0		0	324	0		2	525	0		852	3424
5:00 PM	2	0	5		0	0	0		0	344	0		0	513	1		865	3505
5:15 PM	1	0	0		0	0	0		0	394	0		2	514	0		911	3554
5:30 PM	0	0	1		0	0	0		0	307	0		1	471	0		780	3408
5:45 PM	2	0	2		0	0	0		0	293	0		1	439	1		738	3294

PEAK 15-MIN FLOW RATES	Northbound				Southbound				Eastbound				Westbound				TOTAL
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0		4	0	0		0	1696	4		0	1996	4		3704
Heavy Trucks	0	0	0		0	0	0		0	36	0		0	60	0		96
Pedestrians		0				0				0				0			0
Bicycles																	
Railroad																	
Stopped Buses																	

Counter Comments:

Report generated on 3/19/2007

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

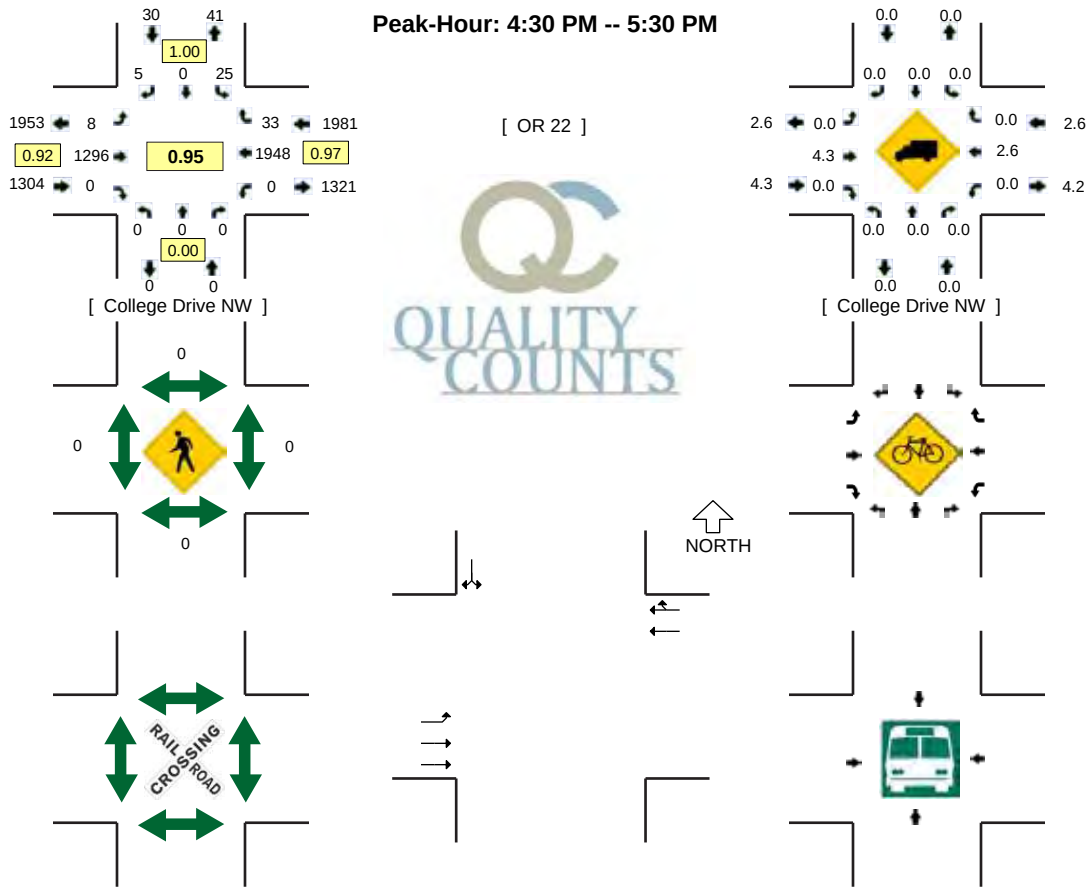
Type of peak hour being reported: User Defined

Method for determining peak hour: Total Entering Volume

INTERSECTION: College Drive NW--OR 22
WEATHER:

QC JOB #: 10236417
DATE: 3/7/2007

Peak-Hour: 4:30 PM -- 5:30 PM



*SEE LEGEND SHEET

5-MIN COUNT PERIOD BEGINNING AT	College Drive NW (Northbound)				College Drive NW (Southbound)				OR 22 (Eastbound)				OR 22 (Westbound)				TOTAL	HOURLY TOTALS
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
2:00 PM	0	0	0		2	0	0		3	219	0		0	257	4		485	1942
2:15 PM	0	0	0		5	0	2		0	251	0		0	275	3		536	2032
2:30 PM	0	0	0		5	0	0		0	250	0		0	300	9		564	2103
2:45 PM	0	0	0		1	0	0		1	277	0		0	290	8		577	2162
3:00 PM	0	0	0		4	0	4		0	251	0		0	325	13		597	2274
3:15 PM	0	0	0		8	0	3		4	310	0		0	355	13		693	2431
3:30 PM	0	0	0		4	0	2		0	310	0		0	347	9		672	2539
3:45 PM	0	0	0		7	0	0		4	436	0		0	410	5		862	2824
4:00 PM	0	0	0		3	0	2		0	306	0		0	456	9		776	3003
4:15 PM	0	0	0		5	0	0		1	340	0		0	460	8		814	3124
4:30 PM	0	0	0		6	0	1		2	354	0		0	468	9		840	3292
4:45 PM	0	0	0		5	0	1		4	302	0		0	470	8		790	3220
5:00 PM	0	0	0		8	0	2		1	287	0		0	507	8		813	3257
5:15 PM	0	0	0		6	0	1		1	353	0		0	503	8		872	3315
5:30 PM	0	0	0		2	0	0		1	297	0		0	447	8		755	3230
5:45 PM	0	0	0		3	0	0		5	265	0		0	439	11		723	3163
6:00 PM	0	0	0		3	0	0		1	201	0		0	375	0		580	2930
6:15 PM	0	0	0		7	0	3		0	244	0		0	321	7		582	2640
6:30 PM	0	0	0		2	0	0		2	194	0		0	269	9		476	2361
6:45 PM	0	0	0		4	0	0		4	148	0		0	261	26		443	2081
7:00 PM	0	0	0		3	0	0		0	155	0		0	224	17		399	1900
7:15 PM	0	0	0		2	0	0		1	128	0		0	203	1		335	1653
7:30 PM	0	0	0		1	0	1		2	135	0		0	194	5		338	1515
7:45 PM	0	0	0		3	0	1		0	107	0		0	175	5		291	1363

PEAK 15-MIN FLOW RATES	Northbound				Southbound				Eastbound				Westbound				TOTAL
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0		24	0	4		4	1412	0		0	2012	32		3488
Heavy Trucks	0	0	0		0	0	0		0	48	0		0	48	0		96
Pedestrians		0				0				0				0			0
Bicycles																	
Railroad																	
Stopped Buses																	

Counter Comments:

Report generated on 3/19/2007

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

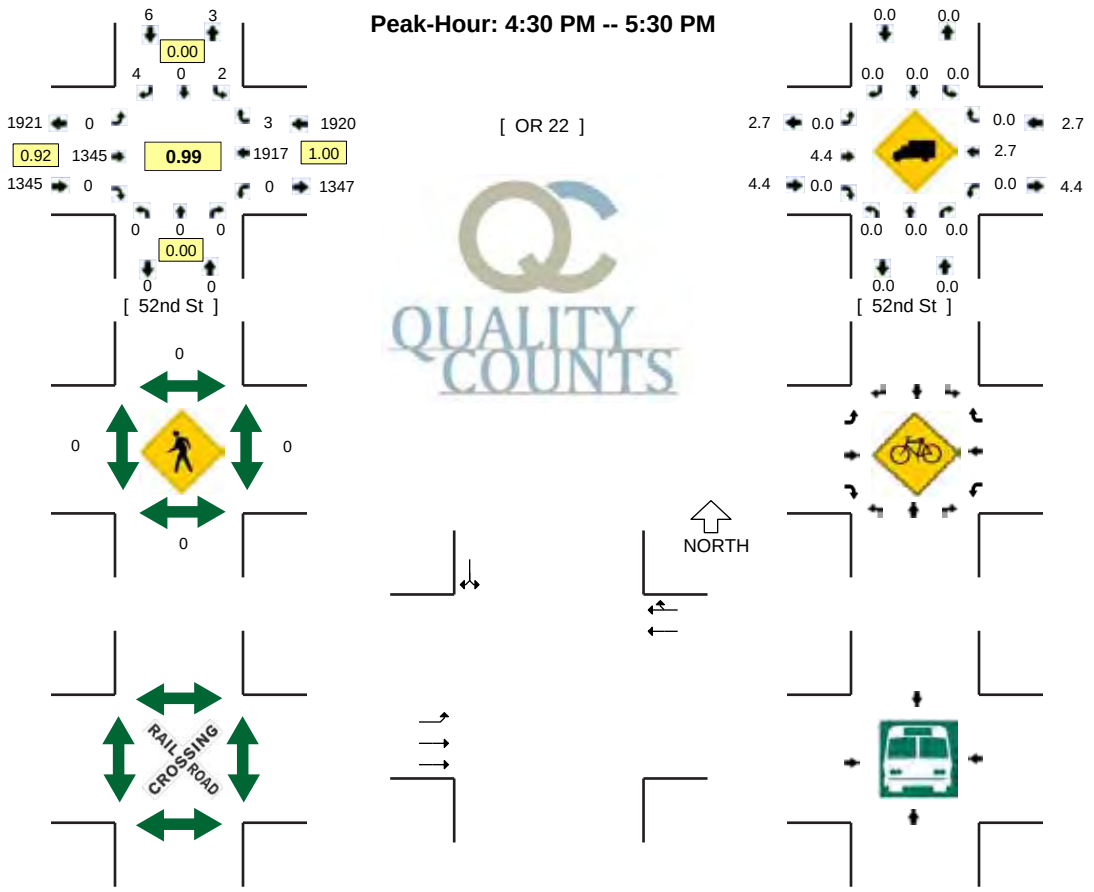
Type of peak hour being reported: User Defined

Method for determining peak hour: Total Entering Volume

INTERSECTION: 52nd St--OR 22
WEATHER:

QC JOB #: 10236404
DATE: 3/7/2007

Peak-Hour: 4:30 PM -- 5:30 PM



*SEE LEGEND SHEET

5-MIN COUNT PERIOD BEGINNING AT	52nd St (Northbound)				52nd St (Southbound)				OR 22 (Eastbound)				OR 22 (Westbound)				TOTAL	HOURLY TOTALS
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	0	0		3	0	0		0	291	0		0	335	0		629	
3:15 PM	0	0	0		1	0	0		0	339	0		0	427	2		769	
3:30 PM	0	0	0		7	0	1		0	399	0		0	381	0		788	
3:45 PM	0	0	0		2	0	0		0	453	0		0	454	1		910	3096
4:00 PM	0	0	0		0	0	0		1	301	0		0	437	2		741	3208
4:15 PM	0	0	0		1	0	0		0	367	0		0	463	0		831	3270
4:30 PM	0	0	0		0	0	0		0	365	0		0	458	2		825	3307
4:45 PM	0	0	0		1	0	4		0	298	0		0	494	1		798	3195
5:00 PM	0	0	0		1	0	0		0	318	0		0	501	0		820	3274
5:15 PM	0	0	0		0	0	0		0	364	0		0	464	0		828	3271
5:30 PM	0	0	0		0	0	0		0	295	0		0	469	2		766	3212
5:45 PM	0	0	0		0	0	0		0	279	0		0	412	6		697	3111

PEAK 15-MIN FLOW RATES	Northbound				Southbound				Eastbound				Westbound				TOTAL
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0		0	0	0		0	1456	0		0	1856	0		3312
Heavy Trucks	0	0	0		0	0	0		0	60	0		0	20	0		80
Pedestrians		0				0				0				0			0
Bicycles																	
Railroad																	
Stopped Buses																	

Counter Comments:

Report generated on 3/19/2007

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

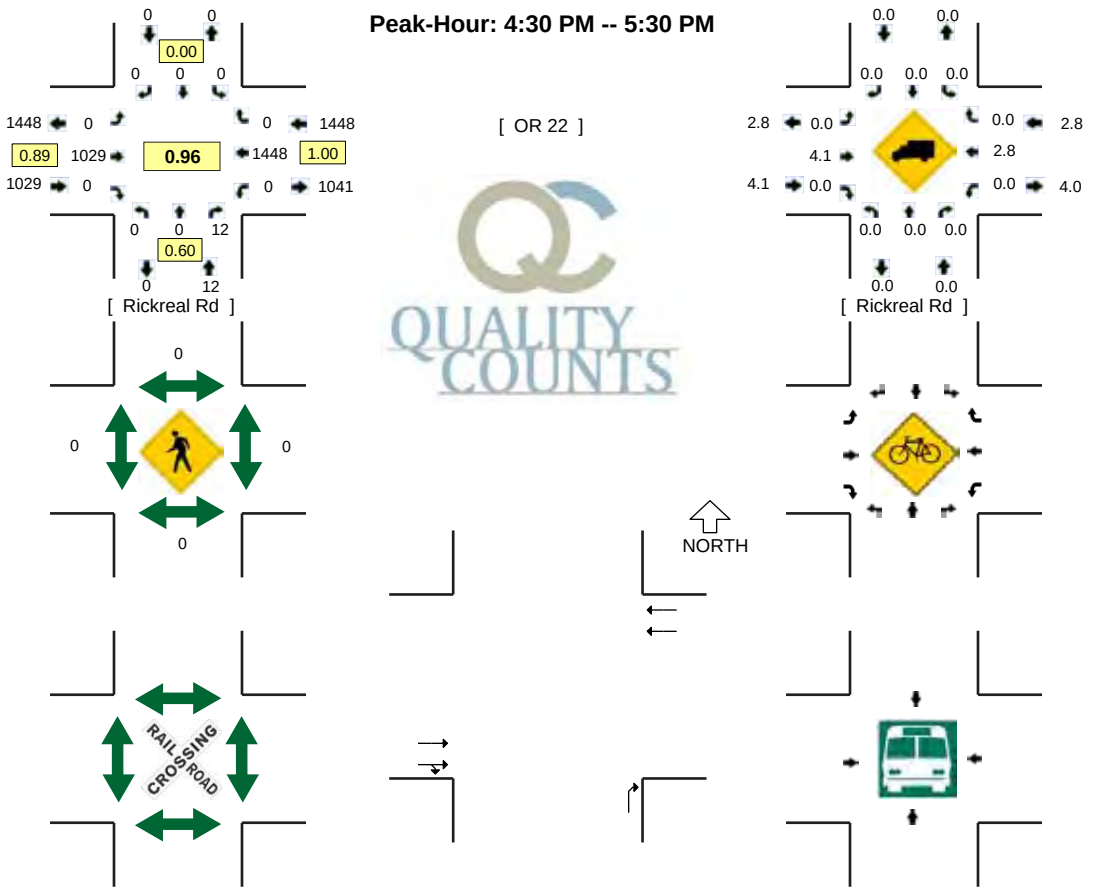
Type of peak hour being reported: User Defined

Method for determining peak hour: Total Entering Volume

INTERSECTION: Rickreal Rd--OR 22
WEATHER:

QC JOB #: 10236416
DATE: 3/7/2007

Peak-Hour: 4:30 PM -- 5:30 PM



*SEE LEGEND SHEET

5-MIN COUNT PERIOD BEGINNING AT	Rickreal Rd (Northbound)				Rickreal Rd (Southbound)				OR 22 (Eastbound)				OR 22 (Westbound)				TOTAL	HOURLY TOTALS
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	0	8		0	0	0		0	210	1		0	218	0		437	
3:15 PM	0	0	9		0	0	0		0	213	0		0	260	0		482	
3:30 PM	0	0	7		0	0	0		0	272	0		0	273	0		552	
3:45 PM	0	0	6		0	0	0		0	277	0		0	291	0		574	2045
4:00 PM	0	0	7		0	0	0		0	235	0		0	305	0		547	2155
4:15 PM	0	0	11		0	0	0		0	276	0		0	366	0		653	2326
4:30 PM	0	0	5		0	0	0		0	288	0		0	353	0		646	2420
4:45 PM	0	0	2		0	0	0		0	234	0		0	382	0		618	2464
5:00 PM	0	0	4		0	0	0		0	233	0		0	359	0		596	2513
5:15 PM	0	0	1		0	0	0		0	274	0		0	354	0		629	2489
5:30 PM	0	0	5		0	0	0		0	218	0		0	365	0		588	2431
5:45 PM	0	0	3		0	0	0		0	209	0		0	333	0		545	2358

PEAK 15-MIN FLOW RATES	Northbound				Southbound				Eastbound				Westbound				TOTAL
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	20		0	0	0		0	1152	0		0	1412	0		2584
Heavy Trucks	0	0	0		0	0	0		0	44	0		0	52	0		96
Pedestrians		0				0				0				0			0
Bicycles																	
Railroad																	
Stopped Buses																	

Counter Comments:

Report generated on 3/19/2007

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Attachment B
HCM Existing Intersection Capacity

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	1288	1	13	1730	3	3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.85	0.85
Hourly flow rate (veh/h)	1356	1	14	1821	4	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1357		2294	678
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1357		2294	678
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		89	99
cM capacity (veh/h)			513		33	399

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	904	453	14	911	911	7
Volume Left	0	0	14	0	0	4
Volume Right	0	1	0	0	0	4
cSH	1700	1700	513	1700	1700	61
Volume to Capacity	0.53	0.27	0.03	0.54	0.54	0.12
Queue Length (ft)	0	0	2	0	0	9
Control Delay (s)	0.0	0.0	12.2	0.0	0.0	72.0
Lane LOS			B			F
Approach Delay (s)	0.0		0.1			72.0
Approach LOS						F

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	63.1%	ICU Level of Service	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	15	1275	1	492	1719	17	1	0	275	1	0	13
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	16	1342	1	518	1809	18	1	0	289	1	0	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1827			1343			3328	4237	672	3557	4229	914
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1827			1343			3328	4237	672	3557	4229	914
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			0			0	0	28	0	0	95
cM capacity (veh/h)	339			514			0	0	403	0	0	280

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1
Volume Total	16	895	448	518	1206	621	1	289	15
Volume Left	16	0	0	518	0	0	1	0	1
Volume Right	0	0	1	0	0	18	0	289	14
cSH	339	1700	1700	514	1700	1700	0	403	0
Volume to Capacity	0.05	0.53	0.26	1.01	0.71	0.37	Err	0.72	Err
Queue Length (ft)	4	0	0	354	0	0	Err	138	Err
Control Delay (s)	16.1	0.0	0.0	70.0	0.0	0.0	Err	33.6	Err
Lane LOS	C			F			F	D	F
Approach Delay (s)	0.2			15.5			Err		Err
Approach LOS							F		F

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	82.8%	ICU Level of Service	D

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	1568	6	14	2223	4	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	1704	7	15	2416	4	24
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1711		2946	855
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1711		2946	855
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		61	92
cM capacity (veh/h)			367		11	301

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	1136	575	15	1208	1208	28
Volume Left	0	0	15	0	0	4
Volume Right	0	7	0	0	0	24
cSH	1700	1700	367	1700	1700	60
Volume to Capacity	0.67	0.34	0.04	0.71	0.71	0.47
Queue Length (ft)	0	0	3	0	0	46
Control Delay (s)	0.0	0.0	15.2	0.0	0.0	110.1
Lane LOS			C			F
Approach Delay (s)	0.0		0.1			110.1
Approach LOS						F

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	80.5%	ICU Level of Service	D

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	160	1437	2186	35	3	66
Peak Hour Factor	0.95	0.95	0.95	0.95	0.85	0.85
Hourly flow rate (veh/h)	168	1513	2301	37	4	78
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2338				3413	1169
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2338				3413	1169
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	20				0	59
cM capacity (veh/h)	211				1	189

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	168	756	756	1534	804	81
Volume Left	168	0	0	0	0	4
Volume Right	0	0	0	0	37	78
cSH	211	1700	1700	1700	1700	23
Volume to Capacity	0.80	0.44	0.44	0.90	0.47	3.51
Queue Length (ft)	143	0	0	0	0	Err
Control Delay (s)	66.9	0.0	0.0	0.0	0.0	Err
Lane LOS	F					F
Approach Delay (s)	6.7			0.0		Err
Approach LOS						F

Intersection Summary			
Average Delay	200.7		
Intersection Capacity Utilization	93.5%	ICU Level of Service	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	3	1191	4	29	1682	4	1	0	11	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (veh/h)	3	1254	4	31	1771	4	1	0	13	1	1	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1775			1258			2210	3098	629	2480	3098	887
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1775			1258			2210	3098	629	2480	3098	887
tC, single (s)	4.1			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			94			95	100	97	92	89	100
cM capacity (veh/h)	355			538			22	11	430	14	11	291

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	3	836	422	31	1180	594	14	4
Volume Left	3	0	0	31	0	0	1	1
Volume Right	0	0	4	0	0	4	13	1
cSH	355	1700	1700	538	1700	1700	168	18
Volume to Capacity	0.01	0.49	0.25	0.06	0.69	0.35	0.08	0.19
Queue Length (ft)	1	0	0	4	0	0	7	14
Control Delay (s)	15.2	0.0	0.0	12.1	0.0	0.0	28.4	242.3
Lane LOS	C			B			D	F
Approach Delay (s)	0.0			0.2			28.4	242.3
Approach LOS							D	F

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	61.8%	ICU Level of Service	B

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	1263	0	0	1715	0	13
Peak Hour Factor	0.95	0.95	0.95	0.95	0.85	0.85
Hourly flow rate (veh/h)	1329	0	0	1805	0	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					Raised	
Median storage veh)					1	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1329		2232	665
vC1, stage 1 conf vol					1329	
vC2, stage 2 conf vol					903	
vCu, unblocked vol			1329		2232	665
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	96
cM capacity (veh/h)			526		139	407

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NE 1
Volume Total	886	443	903	903	15
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	15
cSH	1700	1700	1700	1700	407
Volume to Capacity	0.52	0.26	0.53	0.53	0.04
Queue Length (ft)	0	0	0	0	3
Control Delay (s)	0.0	0.0	0.0	0.0	14.2
Lane LOS					B
Approach Delay (s)	0.0		0.0		14.2
Approach LOS					B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	56.0%	ICU Level of Service	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	4	1272	1710	5	2	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.85	0.85
Hourly flow rate (veh/h)	4	1339	1800	5	2	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					TWLTL	
Median storage veh)					1	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1805				2481	903
vC1, stage 1 conf vol					1803	
vC2, stage 2 conf vol					678	
vCu, unblocked vol	1805				2481	903
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	98
cM capacity (veh/h)	346				94	284

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	4	669	669	1200	605	8
Volume Left	4	0	0	0	0	2
Volume Right	0	0	0	0	5	6
cSH	346	1700	1700	1700	1700	180
Volume to Capacity	0.01	0.39	0.39	0.71	0.36	0.05
Queue Length (ft)	1	0	0	0	0	4
Control Delay (s)	15.5	0.0	0.0	0.0	0.0	26.0
Lane LOS	C					D
Approach Delay (s)	0.0			0.0		26.0
Approach LOS						D

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	62.7%	ICU Level of Service	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	5	1269	1711	22	20	4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.85	0.85
Hourly flow rate (veh/h)	5	1336	1801	23	24	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					TWLTL	
Median storage veh)					1	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1824				2491	912
vC1, stage 1 conf vol					1813	
vC2, stage 2 conf vol					678	
vCu, unblocked vol	1824				2491	912
tC, single (s)	4.1				6.9	6.9
tC, 2 stage (s)					5.9	
tF (s)	2.2				3.5	3.3
p0 queue free %	98				73	98
cM capacity (veh/h)	340				88	280

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	5	668	668	1201	624	28
Volume Left	5	0	0	0	0	24
Volume Right	0	0	0	0	23	5
cSH	340	1700	1700	1700	1700	99
Volume to Capacity	0.02	0.39	0.39	0.71	0.37	0.28
Queue Length (ft)	1	0	0	0	0	27
Control Delay (s)	15.8	0.0	0.0	0.0	0.0	55.1
Lane LOS	C					F
Approach Delay (s)	0.1			0.0		55.1
Approach LOS						F

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	63.3%	ICU Level of Service	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	1551	2224	3	2	4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.85	0.85
Hourly flow rate (veh/h)	0	1633	2341	3	2	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					TWLTL	
Median storage veh)					1	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2344				3159	1172
vC1, stage 1 conf vol					2343	
vC2, stage 2 conf vol					816	
vCu, unblocked vol	2344				3159	1172
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				95	98
cM capacity (veh/h)	213				49	188

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	0	816	816	1561	784	7
Volume Left	0	0	0	0	0	2
Volume Right	0	0	0	0	3	5
cSH	1700	1700	1700	1700	1700	97
Volume to Capacity	0.00	0.48	0.48	0.92	0.46	0.07
Queue Length (ft)	0	0	0	0	0	6
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	45.0
Lane LOS						E
Approach Delay (s)	0.0			0.0		45.0
Approach LOS						E

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	78.4%	ICU Level of Service	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	5	1548	0	0	2211	26	0	0	0	26	0	16
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (veh/h)	5	1629	0	0	2327	27	0	0	0	31	0	19
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											1	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2355			1629			2823	3995	815	3166	3981	1177
vC1, stage 1 conf vol										2341	2341	
vC2, stage 2 conf vol										825	1640	
vCu, unblocked vol	2355			1629			2823	3995	815	3166	3981	1177
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)										6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			100			100	100	100	4	100	90
cM capacity (veh/h)	211			395			7	3	321	32	44	187

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	5	815	815	1552	803	0	49
Volume Left	5	0	0	0	0	0	31
Volume Right	0	0	0	0	27	0	19
cSH	211	1700	1700	1700	1700	1700	47
Volume to Capacity	0.02	0.48	0.48	0.91	0.47	0.00	1.06
Queue Length (ft)	2	0	0	0	0	0	112
Control Delay (s)	22.5	0.0	0.0	0.0	0.0	0.0	288.3
Lane LOS	C					A	F
Approach Delay (s)	0.1			0.0		0.0	288.3
Approach LOS						A	F

Intersection Summary				
Average Delay	3.6			
Intersection Capacity Utilization	78.8%	ICU Level of Service	C	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	1	1589	2247	2	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.85	0.85
Hourly flow rate (veh/h)	1	1673	2365	2	2	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					TWLTL	
Median storage veh)					1	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2367				3205	1184
vC1, stage 1 conf vol					2366	
vC2, stage 2 conf vol					838	
vCu, unblocked vol	2367				3205	1184
tC, single (s)	6.1				7.8	6.9
tC, 2 stage (s)					6.8	
tF (s)	3.2				4.0	3.3
p0 queue free %	98				90	100
cM capacity (veh/h)	49				25	185

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	1	836	836	1577	791	2
Volume Left	1	0	0	0	0	2
Volume Right	0	0	0	0	2	0
cSH	49	1700	1700	1700	1700	25
Volume to Capacity	0.02	0.49	0.49	0.93	0.47	0.10
Queue Length (ft)	2	0	0	0	0	7
Control Delay (s)	80.4	0.0	0.0	0.0	0.0	166.3
Lane LOS	F					F
Approach Delay (s)	0.1			0.0		166.3
Approach LOS						F

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	79.1%	ICU Level of Service	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	1590	1	4	2246	2	3	0	6	1	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (veh/h)	0	1674	1	4	2364	2	4	0	7	1	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								1			1	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2366			1675			2865	4049	837	3218	4048	1183
vC1, stage 1 conf vol							1674	1674		2374	2374	
vC2, stage 2 conf vol							1191	2375		844	1675	
vCu, unblocked vol	2366			1675			2865	4049	837	3218	4048	1183
tC, single (s)	4.1			4.6			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.5			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			95	100	98	96	100	100
cM capacity (veh/h)	209			290			64	44	314	30	43	185

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	0	1116	559	4	1576	790	11	1
Volume Left	0	0	0	4	0	0	4	1
Volume Right	0	0	1	0	0	2	7	0
cSH	1700	1700	1700	290	1700	1700	137	30
Volume to Capacity	0.00	0.66	0.33	0.01	0.93	0.46	0.08	0.04
Queue Length (ft)	0	0	0	1	0	0	6	3
Control Delay (s)	0.0	0.0	0.0	17.6	0.0	0.0	33.4	130.0
Lane LOS				C			D	F
Approach Delay (s)	0.0			0.0			33.4	130.0
Approach LOS							D	F

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	79.1%	ICU Level of Service	C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	9	1413	2123	36	27	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.85	0.85
Hourly flow rate (veh/h)	9	1487	2235	38	32	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					TWLTL	
Median storage veh)					1	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2273				3016	1136
vC1, stage 1 conf vol					2254	
vC2, stage 2 conf vol					763	
vCu, unblocked vol	2273				3016	1136
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	96				42	97
cM capacity (veh/h)	228				55	199

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	9	744	744	1490	783	38
Volume Left	9	0	0	0	0	32
Volume Right	0	0	0	0	38	6
cSH	228	1700	1700	1700	1700	62
Volume to Capacity	0.04	0.44	0.44	0.88	0.46	0.61
Queue Length (ft)	3	0	0	0	0	63
Control Delay (s)	21.5	0.0	0.0	0.0	0.0	129.1
Lane LOS	C					F
Approach Delay (s)	0.1			0.0		129.1
Approach LOS						F

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	76.5%	ICU Level of Service	C

CALCULATION/DESIGN RECORD

Kittelson & Associates, Inc.
Transportation Planning/Traffic Engineering
Baltimore • Ft. Lauderdale • Orlando • Portland
http://www.kittelson.com

DATE 4/10 PROJECT # 8439

PROJECT NAME OR 22

SUBJECT SEGMENT V/C OR 22 BY DXH SHEET # 1 OF 1

* 2007 EXISTING 30th HOUR VOLS *

→ GREENWOOD TO OR 51

WB VOL = 1275
EB VOL = 1760

→ OR 51 TO 50th

WB VOL = 2220
EB VOL = 1500

→ 50th TO DOAKES FERRY

WB VOL = 2240
EB VOL = 1590

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	JXH
Agency/Co:	Kittelson
Date:	4/10/2007
Analysis Period:	Existing 2007 PM
Highway:	OR 22
From/To:	OR 51 to 50th Ave
Jurisdiction:	ODOT
Analysis Year:	2007
Project ID:	

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	5		6	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0*	mph	0.0*	mph
Access points adjustment, FA	1.3	mph	1.5	mph
Free-flow speed	58.8	mph	58.5	mph

VOLUME

Direction	1		2	
Volume, V	1275	vph	1700	vph
Peak-hour factor, PHF	0.95		0.95	
Peak 15-minute volume, v15	336		447	
Trucks and buses	2	%	2	%
Recreational vehicles	1	%	1	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.988		0.988	
Flow rate, vp	679	pcphpl	905	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	679	pcphpl	905	pcphpl
Free-flow speed, FFS	58.8	mph	58.5	mph
Avg. passenger-car travel speed, S	58.8	mph	58.5	mph
Level of service, LOS	B		B	
Density, D	11.6	pc/mi/ln	15.5	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

$$V/c = \frac{V_p}{c}$$

EB

$$= \frac{679}{2100^*}$$

$$= 0.32 \text{ EB}$$

WB

$$= \frac{905}{2100}$$

$$= 0.43 \text{ WB}$$

* C = BASED ON ASSUMED FREE FLOW SPEED OF 55 mph

- LOS E = CAPACITY
- MAXIMUM SERVICE FLOW RATE (pc/h/ln) = 2100

HCS2000: Multilane Highways Release 4.1f

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: JXH
Agency/Co: Kittelson
Date: 4/10/2007
Analysis Period: Existing 2007 PM
Highway: OR 22
From/To: OR 51 to 50th Ave
Jurisdiction: ODOT
Analysis Year: 2007
Project ID:

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	6		6	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0*	mph	0.0*	mph
Access points adjustment, FA	1.5	mph	1.5	mph
Free-flow speed	58.5	mph	58.5	mph

VOLUME

Direction	1		2	
Volume, V	1500	vph	2220	vph
Peak-hour factor, PHF	0.95		0.95	
Peak 15-minute volume, v15	395		584	
Trucks and buses	2	%	2	%
Recreational vehicles	1	%	1	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.988		0.988	
Flow rate, vp	798	pcphpl	1182	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	798	pcphpl	1182	pcphpl
Free-flow speed, FFS	58.5	mph	58.5	mph
Avg. passenger-car travel speed, S	58.5	mph	58.5	mph
Level of service, LOS	B		C	
Density, D	13.6	pc/mi/ln	20.2	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

$$v/c = \frac{vp}{c}$$

EB

$$= \frac{798}{2100}$$

$$= 0.38 \text{ EB}$$

WB

$$= \frac{1182}{2100}$$

$$= 0.56 \text{ WB}$$

HCS2000: Multilane Highways Release 4.1f

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: JXH
Agency/Co: Kittelson
Date: 4/10/2007
Analysis Period: Existing 2007 PM
Highway: OR 22
From/To: 50th Ave to Doaks
Jurisdiction: ODOT
Analysis Year: 2007
Project ID:

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	6		6	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0*	mph	0.0*	mph
Access points adjustment, FA	1.5	mph	1.5	mph
Free-flow speed	58.5	mph	58.5	mph

VOLUME

Direction	1		2	
Volume, V	1590	vph	2240	vph
Peak-hour factor, PHF	0.95		0.95	
Peak 15-minute volume, v15	418		589	
Trucks and buses	2	%	2	%
Recreational vehicles	1	%	1	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.988		0.988	
Flow rate, vp	846	pcphpl	1193	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	846	pcphpl	1193	pcphpl
Free-flow speed, FFS	58.5	mph	58.5	mph
Avg. passenger-car travel speed, S	58.5	mph	58.5	mph
Level of service, LOS	B		C	
Density, D	14.5	pc/mi/ln	20.4	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

$$v/c = \frac{vp}{c}$$

EB

$$= \frac{846}{2100}$$

$$= 0.40 \text{ EB}$$

WB

$$= \frac{1193}{2100}$$

$$= 0.57 \text{ WB}$$

6.3 Multi-Lane Highways

Analysis procedures for uninterrupted-flow multi-lane highways are provided in Chapter 21 of the *HCM*. Highways analyzed with this procedure must maintain a minimum of two travel lanes in each direction, would typically have direct access allowed through driveways and at-grade intersections, and must maintain uninterrupted flow. Highways with access limited to on-ramps and off-ramps should be analyzed using the Basic Freeway Segment methodology. In addition, highways experiencing interrupted flow from influences such as traffic signals and on-street parking should be analyzed using a different methodology, such as the Urban Streets methodology from the *HCM*.

These procedures are very similar to those previously described for basic freeway segments, with slightly different input data needs. The most notable differences include the need to account for median type and access density. For a complete description of the analysis methodology, refer to Chapter 21 of the *HCM*.

While the *HCM* methodology uses level of service as a performance measure (based on vehicle density in passenger cars per mile per lane), volume/capacity ratios can be calculated from this analysis for comparison against ODOT's adopted mobility standards by following the steps listed below. Note that separate volume/capacity ratios must be calculated for each direction of travel.

1. Assuming level of service E/F threshold represents capacity, determine the segment capacity by interpolating between the values for "maximum service flow rate" at level of service E displayed in Exhibit 21-2 of the *HCM* for the appropriate free-flow speed. Free-flow speed will be either calculated by this methodology or assumed.
2. Divide the calculated flow rate (v_p) by the interpolated capacity to obtain a volume/capacity ratio.

EXHIBIT 21-2. LOS CRITERIA FOR MULTILANE HIGHWAYS

		LOS				
Free-Flow Speed	Criteria	A	B	C	D	E
60 mi/h	Maximum density (pc/mi/ln)	11	18	26	35	40
	Average speed (mi/h)	60.0	60.0	59.4	56.7	55.0
	Maximum volume to capacity ratio (v/c)	0.30	0.49	0.70	0.90	1.00
	Maximum service flow rate (pc/h/ln)	660	1080	1550	1980	2200
55 mi/h	Maximum density (pc/mi/ln)	11	18	26	35	41
	Average speed (mi/h)	55.0	55.0	54.9	52.9	51.2
	Maximum v/c	0.29	0.47	0.68	0.88	1.00
	Maximum service flow rate (pc/h/ln)	600	990	1430	1850	2100
50 mi/h	Maximum density (pc/mi/ln)	11	18	26	35	43
	Average speed (mi/h)	50.0	50.0	50.0	48.9	47.5
	Maximum v/c	0.28	0.45	0.65	0.86	1.00
	Maximum service flow rate (pc/h/ln)	550	900	1300	1710	2000
45 mi/h	Maximum density (pc/mi/ln)	11	18	26	35	45
	Average speed (mi/h)	45.0	45.0	45.0	44.4	42.2
	Maximum v/c	0.26	0.43	0.62	0.82	1.00
	Maximum service flow rate (pc/h/ln)	490	810	1170	1550	1900

Note:
The exact mathematical relationship between density and volume to capacity ratio (v/c) has not always been maintained at LOS boundaries because of the use of rounded values. Density is the primary determinant of LOS. LOS F is characterized by highly unstable and variable traffic flow. Prediction of accurate flow rate, density, and speed at LOS F is difficult.

The LOS criteria reflect the shape of the speed-flow and density-flow curves, particularly as speed remains relatively constant across LOS A to D but is reduced as capacity is approached. For FFS of 60, 55, 50, and 45 mi/h, Exhibit 21-2 gives the average speed, the maximum value of v/c, the maximum density, and the corresponding maximum service flow rate for each LOS.

As with other LOS criteria, the maximum service flow rates in Exhibit 21-2 are stated in terms of flow rate based on the peak 15-min volume. Demand or forecast hourly volumes generally are divided by the peak-hour factor (PHF) to reflect a maximum hourly flow rate before comparison with the criteria of Exhibit 21-2. Using the basic speed-flow curves (see Exhibit 21-3), the relationships between LOS, flow, and speed can be analyzed.

DETERMINING FFS

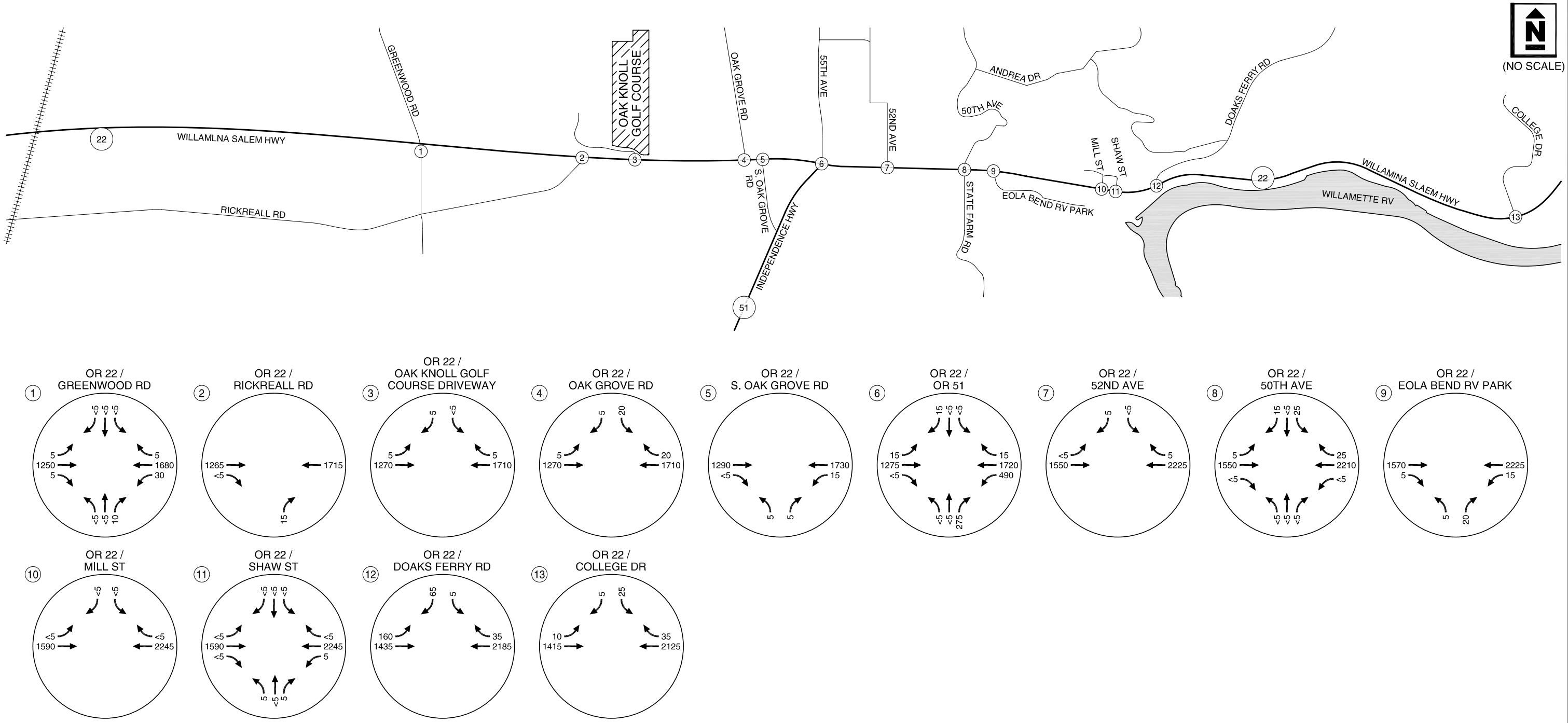
FFS is measured using the mean speed of passenger cars operating in low-to-moderate flow conditions (up to 1,400 pc/h/ln). Mean speed is virtually constant across this range of flow rates. Field measurement and estimation with guidelines provided in this chapter are methods that can be used to determine FFS.

The field measurement procedure is for those who prefer to gather data directly or to incorporate the measurements into a speed-monitoring program. However, field measurements are not necessary to apply the method.

The FFS of a highway can be determined directly from a speed study conducted in the field. If field-measured data are used, no adjustments need to be made to FFS. The speed study should be conducted along a reasonable length of highway within the segment under evaluation; for example, an upgrade should not be selected within a site that is generally level. Any speed measurement technique acceptable for other types of traffic engineering speed studies can be used.

FFS occurs at flow rates ≤ 1,400 pc/h/ln

The field study should be conducted in the more stable regime of low-to-moderate flow conditions (up to 1,400 pc/h/ln). If the speed study must be conducted at a flow rate of more than 1,400 pc/h/ln, the FFS can be found by using the model speed-flow curve, assuming that data on traffic volumes are recorded at the same time.



LEGEND

CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

YEAR 2007 EXISTING TRAFFIC CONDITIONS
30TH HOUR BALANCED TRAFFIC VOLUMES

FIGURE 1

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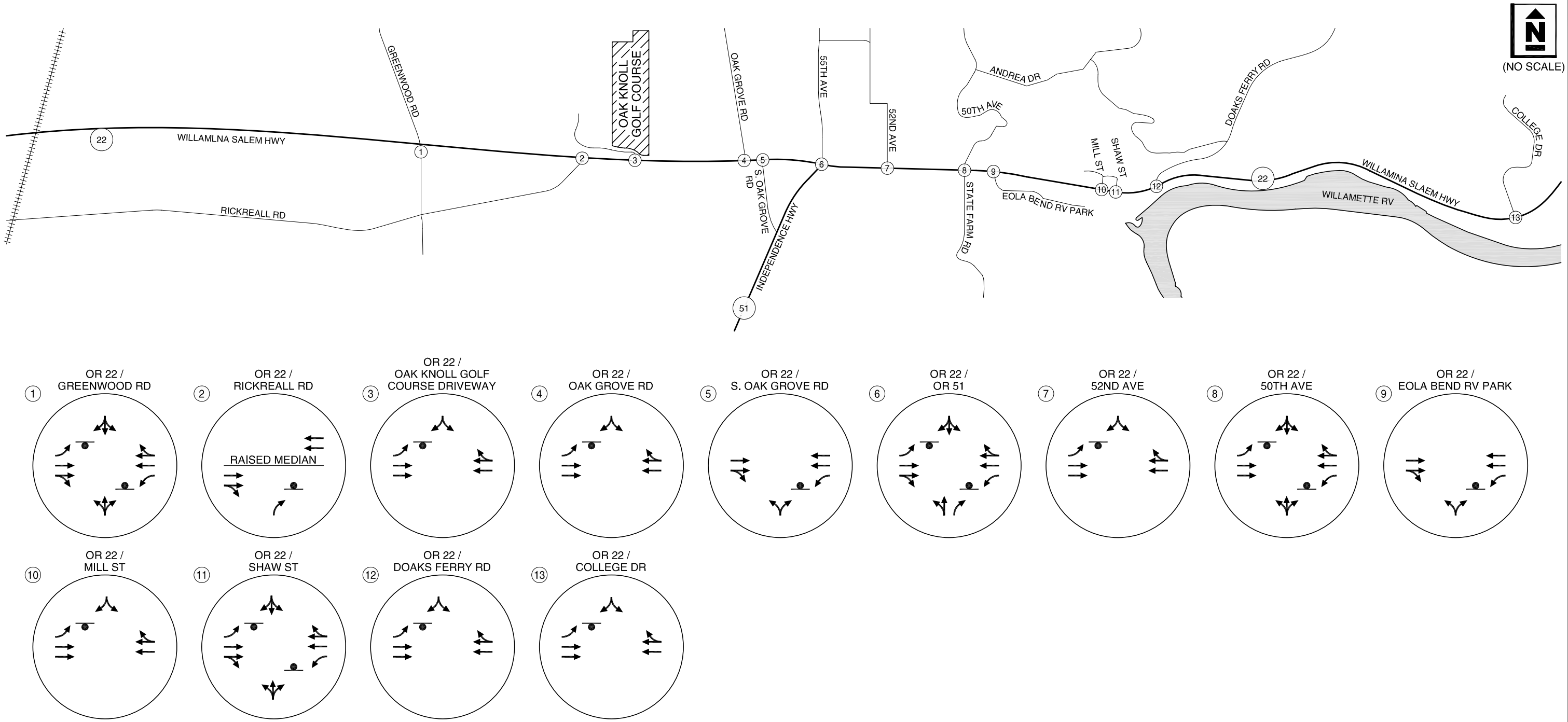

LEGEND

CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

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EXISTING LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES

FIGURE 2

Attachment C
Crash Rate Information

TABLE II: FIVE-YEAR COMPARISON OF STATE HIGHWAY CRASH RATES

Table II presents a comparison of state highway crash rates for the past five years, for urban and rural areas, by functional classification. Mileage is shown for the current data year only.

See Table IV for information on official highway mileage and VMT data.

JURISDICTION AND FUNCTIONAL CLASSIFICATION	MILES*	2006 Rate	2005 Rate	2004 Rate	2003 Rate	2002 Rate
TOTAL STATE HWY SYSTEM	**7,461.60**	**0.85**	**0.86**	**0.79**	**0.99**	**0.93**
Interstate Freeways	729.57	0.39	0.41	0.37	0.42	0.37
Other Fwys/Expressways	52.26	0.78	0.80	0.78	0.87	0.81
Non-Freeways (Combined)	6,679.77	1.26	1.24	1.13	1.46	1.39
Other Principal Arterials	3,283.55	1.29	1.27	1.16	1.53	1.48
Minor Arterials	1,966.58	1.14	1.14	1.02	1.20	1.07
Urban Collectors	8.86	0.68	1.19	1.23	2.08	5.66
Rural Major Collectors	1,383.18	1.11	1.14	0.93	1.26	1.09
Rural Minor Collectors	34.71	0.66	1.30	0.32	1.30	3.38
Rural Local	2.89	16.52	4.23	2.68	8.06	0.00
URBAN HWY SYSTEM	**826.58**	**1.14**	**1.16**	**1.08**	**1.47**	**1.37**
Interstate Freeways	176.15	0.48	0.51	0.50	0.61	0.50
Other Fwys/Expressways	52.26	0.78	0.80	0.78	0.87	0.81
Non-Freeways (Combined)	598.17	2.06	2.04	1.84	2.71	2.61
Other Principal Arterials	515.27	2.06	2.05	1.85	2.74	2.64
Minor Arterials	74.04	2.09	1.94	1.77	2.41	2.26
Urban Collectors	8.86	0.68	1.19	1.23	2.08	5.66
Urban Cities	**609.50**	**1.20**	**1.21**	**1.15**	**1.60**	**1.45**
Interstate Freeways	126.00	0.52	0.53	0.53	0.64	0.55
Other Fwys/Expressways	46.20	0.76	0.78	0.76	0.89	0.68
Non-Freeways (Combined)	437.30	2.24	2.26	2.05	3.14	2.86
Other Principal Arterials	388.71	2.23	2.25	2.04	3.15	2.88
Minor Arterials	46.94	2.38	2.38	2.21	2.98	2.55
Urban Collectors	1.65	1.84	1.78	1.51	1.68	7.46
Suburban Areas	**217.08**	**0.88**	**0.95**	**0.79**	**0.90**	**0.96**
Interstate Freeways	50.15	0.35	0.44	0.35	0.48	0.27
Other Fwys/Expressways	6.06	0.98	1.05	1.06	0.66	1.91
Non-Freeways (Combined)	160.87	1.45	1.39	1.17	1.29	1.48
Other Principal Arterials	126.56	1.45	1.44	1.22	1.34	1.51
Minor Arterials	27.10	1.52	1.04	0.71	0.60	1.19
Urban Collectors	7.21	0.42	0.94	0.84	3.10	1.04
RURAL HWY SYSTEM	**6,635.02**	**0.60**	**0.61**	**0.54**	**0.63**	**0.60**
Interstate Freeways	553.42	0.28	0.31	0.25	0.26	0.25
Non-Freeways (Combined)	6,081.60	0.80	0.80	0.72	0.87	0.82
Other Principal Arterials	2,768.28	0.72	0.69	0.64	0.77	0.76
Minor Arterials	1,892.54	0.95	1.00	0.88	1.03	0.90
Rural Major Collectors	1,383.18	1.11	1.14	0.93	1.26	1.09
Rural Minor Collectors	34.71	0.66	1.30	0.32	1.30	3.38
Rural Local	2.89	16.52	4.23	2.68	8.06	0.00
Rural Cities	**251.54**	**0.78**	**0.79**	**0.84**	**1.04**	**0.95**
Interstate Freeways	19.00	0.07	0.12	0.03	0.04	0.04
Non-Freeways (Combined)	232.54	1.04	1.01	1.11	1.40	1.23
Other Principal Arterials	127.92	0.94	0.90	0.99	1.28	1.16
Minor Arterials	59.52	1.23	1.23	1.62	1.67	1.43
Rural Major Collectors	44.85	1.35	1.40	0.95	1.68	1.48
Rural Minor Collectors	0.25	4.57	0.00	0.00	0.00	0.00
Rural Areas	**6,383.48**	**0.59**	**0.60**	**0.52**	**0.60**	**0.58**
Interstate Freeways	534.42	0.29	0.32	0.26	0.27	0.27
Non-Freeways (Combined)	5,849.06	0.78	0.78	0.69	0.82	0.78
Other Principal Arterials	2,640.36	0.70	0.68	0.62	0.72	0.72
Minor Arterials	1,833.02	0.93	0.98	0.84	0.97	0.86
Rural Major Collectors	1,338.33	1.08	1.11	0.93	1.20	1.04
Rural Minor Collectors	34.46	0.36	1.40	0.35	1.40	3.65
Rural Local	2.89	16.52	4.23	2.68	8.06	0.00

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Willamina-Salem Hwy (Hwy 30, Route 22) mile point 16.94 to mile point 22.04
1-1-2002 through 12-31-2006

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2006														
ANGLE	0	0	1	1	0	0	0	1	0	1	0	1	0	0
FIXED / OTHER OBJECT	0	0	2	2	0	0	0	2	0	1	1	0	0	1
HEAD-ON	0	1	0	1	0	2	0	0	1	1	0	0	0	0
NON-COLLISION	0	1	0	1	0	1	0	1	0	1	0	0	0	0
REAR-END	0	5	5	10	0	6	0	7	2	9	1	3	0	0
SIDESWIPE - MEETING	0	2	1	3	0	3	1	1	2	1	2	0	0	1
SIDESWIPE - OVERTAKING	0	0	1	1	0	0	0	1	0	1	0	0	0	0
TURNING MOVEMENTS	0	0	2	2	0	0	0	2	0	2	0	1	0	0
2006 TOTAL	0	9	12	21	0	12	1	15	5	17	4	5	0	2
YEAR: 2005														
FIXED / OTHER OBJECT	0	0	1	1	0	0	0	1	0	1	0	0	0	1
HEAD-ON	0	2	0	2	0	3	0	0	2	2	0	2	0	0
NON-COLLISION	0	1	0	1	0	1	2	1	0	1	0	0	0	0
REAR-END	0	4	4	8	0	7	1	4	4	7	1	1	0	0
SIDESWIPE - OVERTAKING	0	1	1	2	0	3	0	1	1	0	2	0	0	0
TURNING MOVEMENTS	0	1	4	5	0	2	1	4	1	5	0	3	0	0
2005 TOTAL	0	9	10	19	0	16	4	11	8	16	3	6	0	1
YEAR: 2004														
ANGLE	0	2	0	2	0	4	0	2	0	2	0	2	0	0
FIXED / OTHER OBJECT	0	3	2	5	0	3	0	1	4	1	4	2	0	5
MISCELLANEOUS	0	0	1	1	0	0	0	1	0	0	1	0	0	0
REAR-END	0	2	4	6	0	3	0	4	2	6	0	1	1	0
SIDESWIPE - OVERTAKING	0	1	0	1	0	1	0	1	0	1	0	0	0	0
TURNING MOVEMENTS	0	4	1	5	0	8	0	4	1	4	1	4	0	0
2004 TOTAL	0	12	8	20	0	19	0	13	7	14	6	9	1	5
YEAR: 2003														
ANGLE	0	1	0	1	0	2	0	1	0	1	0	1	0	0
FIXED / OTHER OBJECT	0	1	0	1	0	2	0	1	0	1	0	0	0	1
HEAD-ON	0	0	1	1	0	0	0	0	1	0	1	0	0	0
PARKING MOVEMENTS	0	1	0	1	0	2	0	1	0	1	0	0	0	0
REAR-END	0	4	3	7	0	6	0	3	4	5	2	3	0	0
TURNING MOVEMENTS	1	7	5	13	1	17	1	9	4	10	3	9	0	0
2003 TOTAL	1	14	9	24	1	29	1	15	9	18	6	13	0	1
YEAR: 2002														
ANGLE	0	1	0	1	0	1	0	0	1	1	0	1	0	0
FIXED / OTHER OBJECT	0	5	3	8	0	7	0	4	4	2	6	0	0	7
HEAD-ON	0	1	0	1	0	1	0	0	1	1	0	0	0	0
NON-COLLISION	0	1	0	1	0	3	0	1	0	0	1	1	0	0
PEDESTRIAN	0	1	0	1	0	1	0	1	0	1	0	0	0	1
REAR-END	0	2	2	4	0	6	0	2	2	3	1	0	0	1
SIDESWIPE - OVERTAKING	0	1	1	2	0	1	1	2	0	2	0	0	0	0
TURNING MOVEMENTS	0	9	4	13	0	19	1	11	2	6	7	9	0	0
2002 TOTAL	0	21	10	31	0	39	2	21	10	16	15	11	0	9

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Willamina-Salem Hwy (Hwy 30, Route 22) mile point 16.94 to mile point 22.04
1-1-2002 through 12-31-2006

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
FINAL TOTAL	1	65	49	115	1	115	8	75	39	81	34	44	1	18

Note: Legislative changes to DMV's vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Independence Hwy (Hwy 193, Route 51) mile point 0.00 to mile point 0.25 in Polk County
1-1-2002 through 12-31-2006

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2003														
MISCELLANEOUS	0	0	1	1	0	0	0	1	0	1	0	0	0	0
2003 TOTAL	0	0	1	1	0	0	0	1	0	1	0	0	0	0
YEAR: 2002														
FIXED / OTHER OBJECT	0	1	1	2	0	1	0	1	1	1	1	0	0	2
2002 TOTAL	0	1	1	2	0	1	0	1	1	1	1	0	0	2
FINAL TOTAL	0	1	2	3	0	1	0	2	1	2	1	0	0	2

Note: Legislative changes to DMV's vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

Five Year OR 22 Crash History by Segment
January 1, 2001 through December 31, 2005

Both Directions					***Number of Crashes***				***Average***
Segment Description	***Milepost From***	***Milepost To***	***Segment Length (Miles)***	***2003 Average Annual Daily Traffic (AADT)***	***Property Damage Only***	***Injury***	***Fatal***	***Total***	***Annual Crash Rate [1]***
Salem Rural Area	16.94	21.19	4.25	28,740					
5 Years					33	47	1	81	
(Average Annual)					7	9	0	16	0.36
Salem Suburban Area	21.19	22.15	0.96	34,600					
5 Years					16	21	1	38	
(Average Annual)					3	4	0	8	0.63
Total/Overall	38.13	43.34	5.21	63340					
5 Years					49	68	2	119	
(Average Annual)*					10	14	0	24	0.20

[1] Crashes per Million Vehicle Miles

Note: Average annual "total" column may not agree with component total due to rounding.

Five Year OR 22 Crash History by Segment
January 1, 2002 through December 31, 2006

Both Directions					*Number of Crashes*				
Segment Description	*Milepost From*	*Milepost To*	*Segment Length (Miles)*	*2003 Average Annual Daily Traffic (AADT)*	*Property Damage Only*	*Injury*	*Fatal*	*Total*	*Average Annual Crash Rate* [1]
Salem Rural Area	16.94	21.19	4.25	28,740					
5 Years					33	46	1	80	
(Average Annual)					7	9	0	16	0.36
Salem Suburban Area	21.19	22.04	0.85	34,600					
5 Years					19	16	0	35	
(Average Annual)					4	3	0	7	0.65
Total/Overall	38.13	43.23	5.10	63340					
5 Years					52	62	1	115	
(Average Annual)*					10	12	0	23	0.20

[1] Crashes per Million Vehicle Miles
Note: Average annual "total" column may not agree with component total due to rounding.

Five Year OR 51 Crash History by Segment
January 1, 2002 through December 31, 2006

Both Directions					*Number of Crashes*				
Segment Description	*Milepost From*	*Milepost To*	*Segment Length (Miles)*	*2003 Average Annual Daily Traffic (AADT)*	*Property Damage Only*	*Injury*	*Fatal*	*Total*	*Average Annual Crash Rate* [1]
Highway to Independence Rural Area	0.00	0.25	0.25	7,100					
5 Years					2	1	0	3	
(Average Annual)					0	0	0	1	0.93
Total/Overall	0.00	0.25	0.25	7,100					
5 Years					2	1	0	3	
(Average Annual)*					0	0	0	1	0.93

[1] Crashes per Million Vehicle Miles
Note: Average annual "total" column may not agree with component total due to rounding.

Attachment D
HCM Future Intersection Capacity

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	2508	2	23	3269	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.85	0.85
Hourly flow rate (veh/h)	2640	2	24	3441	6	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			2642		4410	1321
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2642		4410	1321
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			85		0	96
cM capacity (veh/h)			163		1	150

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	1760	882	24	1721	1721	12
Volume Left	0	0	24	0	0	6
Volume Right	0	2	0	0	0	6
cSH	1700	1700	163	1700	1700	2
Volume to Capacity	1.04	0.52	0.15	1.01	1.01	6.45
Queue Length (ft)	0	0	13	0	0	Err
Control Delay (s)	0.0	0.0	31.0	0.0	0.0	Err
Lane LOS			D			F
Approach Delay (s)	0.0		0.2			Err
Approach LOS						F

Intersection Summary			
Average Delay	19.3		
Intersection Capacity Utilization	110.4%	ICU Level of Service	G

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	26	2485	2	650	3274	31	1	0	364	1	0	17
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	27	2616	2	684	3446	33	1	0	383	1	0	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	3479			2618			5781	7519	1309	6194	7504	1739
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	3479			2618			5781	7519	1309	6194	7504	1739
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	64			0			0	0	0	0	0	77
cM capacity (veh/h)	75			164			0	0	152	0	0	78

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1
Volume Total	27	1744	874	684	2298	1181	1	383	19
Volume Left	27	0	0	684	0	0	1	0	1
Volume Right	0	0	2	0	0	33	0	383	18
cSH	75	1700	1700	164	1700	1700	0	152	0
Volume to Capacity	0.36	1.03	0.51	4.18	1.35	0.69	Err	2.51	Err
Queue Length (ft)	35	0	0	Err	0	0	Err	829	Err
Control Delay (s)	78.1	0.0	0.0	1486.6	0.0	0.0	Err	747.1	Err
Lane LOS	F			F			F	F	F
Approach Delay (s)	0.8			244.3			Err		Err
Approach LOS							F		F

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	129.7%	ICU Level of Service	H

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	2845	11	26	3957	6	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	3092	12	28	4301	7	38
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			3104		5305	1552
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			3104		5305	1552
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			72		0	63
cM capacity (veh/h)			103		0	102

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	2062	1043	28	2151	2151	45
Volume Left	0	0	28	0	0	7
Volume Right	0	12	0	0	0	38
cSH	1700	1700	103	1700	1700	1
Volume to Capacity	1.21	0.61	0.28	1.27	1.27	40.65
Queue Length (ft)	0	0	26	0	0	Err
Control Delay (s)	0.0	0.0	53.0	0.0	0.0	Err
Lane LOS			F			F
Approach Delay (s)	0.0		0.3			Err
Approach LOS						F

Intersection Summary			
Average Delay	59.8		
Intersection Capacity Utilization	135.5%	ICU Level of Service	H

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	348	2542	3773	180	5	220
Peak Hour Factor	0.95	0.95	0.95	0.95	0.85	0.85
Hourly flow rate (veh/h)	366	2676	3972	189	6	259
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	4161				6137	2081
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	4161				6137	2081
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	0				0	0
cM capacity (veh/h)	39				0	45

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	366	1338	1338	2648	1513	265
Volume Left	366	0	0	0	0	6
Volume Right	0	0	0	0	189	259
cSH	39	1700	1700	1700	1700	0
Volume to Capacity	9.50	0.79	0.79	1.56	0.89	Err
Queue Length (ft)	Err	0	0	0	0	Err
Control Delay (s)	4024.3	0.0	0.0	0.0	0.0	Err
Lane LOS	F					F
Approach Delay (s)	484.6			0.0		Err
Approach LOS						F

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	170.9%	ICU Level of Service	H

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	5	2442	7	50	3187	7	2	0	17	2	2	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (veh/h)	5	2571	7	53	3355	7	2	0	20	2	2	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	3362			2578			4371	6052	1289	4779	6052	1681
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	3362			2578			4371	6052	1289	4779	6052	1681
tC, single (s)	4.1			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			67			0	100	87	0	0	97
cM capacity (veh/h)	84			162			0	0	157	0	0	85

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	5	1714	864	53	2236	1126	22	7
Volume Left	5	0	0	53	0	0	2	2
Volume Right	0	0	7	0	0	7	20	2
cSH	84	1700	1700	162	1700	1700	0	0
Volume to Capacity	0.06	1.01	0.51	0.33	1.32	0.66	Err	50.74
Queue Length (ft)	5	0	0	33	0	0	Err	Err
Control Delay (s)	50.8	0.0	0.0	37.6	0.0	0.0	Err	Err
Lane LOS	F			E			F	F
Approach Delay (s)	0.1			0.6			Err	Err
Approach LOS							F	F

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	108.1%	ICU Level of Service	F

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	2461	0	0	3244	0	20
Peak Hour Factor	0.95	0.95	0.95	0.95	0.85	0.85
Hourly flow rate (veh/h)	2591	0	0	3415	0	24
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					Raised	
Median storage veh)					1	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			2591		4298	1295
vC1, stage 1 conf vol					2591	
vC2, stage 2 conf vol					1707	
vCu, unblocked vol			2591		4298	1295
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	85
cM capacity (veh/h)			171		30	156

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NE 1
Volume Total	1727	864	1707	1707	24
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	24
cSH	1700	1700	1700	1700	156
Volume to Capacity	1.02	0.51	1.00	1.00	0.15
Queue Length (ft)	0	0	0	0	13
Control Delay (s)	0.0	0.0	0.0	0.0	32.2
Lane LOS					D
Approach Delay (s)	0.0		0.0		32.2
Approach LOS					D

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	103.0%	ICU Level of Service	F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	7	2474	3235	9	3	9
Peak Hour Factor	0.95	0.95	0.95	0.95	0.85	0.85
Hourly flow rate (veh/h)	7	2604	3405	9	4	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					TWLTL	
Median storage veh)					1	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	3415				4727	1707
vC1, stage 1 conf vol					3410	
vC2, stage 2 conf vol					1317	
vCu, unblocked vol	3415				4727	1707
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	91				72	87
cM capacity (veh/h)	80				12	82

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	7	1302	1302	2270	1145	14
Volume Left	7	0	0	0	0	4
Volume Right	0	0	0	0	9	11
cSH	80	1700	1700	1700	1700	34
Volume to Capacity	0.09	0.77	0.77	1.34	0.67	0.41
Queue Length (ft)	7	0	0	0	0	34
Control Delay (s)	54.7	0.0	0.0	0.0	0.0	170.7
Lane LOS	F					F
Approach Delay (s)	0.2			0.0		170.7
Approach LOS						F

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	109.7%	ICU Level of Service	F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	9	2468	3236	38	42	8
Peak Hour Factor	0.95	0.95	0.95	0.95	0.85	0.85
Hourly flow rate (veh/h)	9	2598	3406	40	49	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					TWLTL	
Median storage veh)					1	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	3446				4744	1723
vC1, stage 1 conf vol					3426	
vC2, stage 2 conf vol					1318	
vCu, unblocked vol	3446				4744	1723
tC, single (s)	4.1				6.9	6.9
tC, 2 stage (s)					5.9	
tF (s)	2.2				3.5	3.3
p0 queue free %	88				0	88
cM capacity (veh/h)	77				11	80

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	9	1299	1299	2271	1175	59
Volume Left	9	0	0	0	0	49
Volume Right	0	0	0	0	40	9
cSH	77	1700	1700	1700	1700	13
Volume to Capacity	0.12	0.76	0.76	1.34	0.69	4.58
Queue Length (ft)	10	0	0	0	0	Err
Control Delay (s)	57.8	0.0	0.0	0.0	0.0	Err
Lane LOS	F					F
Approach Delay (s)	0.2			0.0		Err
Approach LOS						F

Intersection Summary			
Average Delay	96.3		
Intersection Capacity Utilization	110.9%	ICU Level of Service	G

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	2821	3887	5	3	6
Peak Hour Factor	0.95	0.95	0.95	0.95	0.85	0.85
Hourly flow rate (veh/h)	0	2969	4092	5	4	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					TWLTL	
Median storage veh)					1	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	4097				5579	2048
vC1, stage 1 conf vol					4094	
vC2, stage 2 conf vol					1485	
vCu, unblocked vol	4097				5579	2048
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				30	85
cM capacity (veh/h)	42				5	48

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	0	1485	1485	2728	1369	11
Volume Left	0	0	0	0	0	4
Volume Right	0	0	0	0	5	7
cSH	1700	1700	1700	1700	1700	12
Volume to Capacity	0.00	0.87	0.87	1.60	0.81	0.85
Queue Length (ft)	0	0	0	0	0	47
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	592.0
Lane LOS						F
Approach Delay (s)	0.0			0.0		592.0
Approach LOS						F

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	129.6%	ICU Level of Service	H

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	9	2815	0	0	3867	48	0	0	0	41	0	25
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (veh/h)	9	2963	0	0	4071	51	0	0	0	48	0	29
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											1	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	4121			2963			5047	7103	1482	5596	7078	2061
vC1, stage 1 conf vol										4096	4096	
vC2, stage 2 conf vol										1501	2982	
vCu, unblocked vol	4121			2963			5047	7103	1482	5596	7078	2061
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)										6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	77			100			100	100	100	0	100	37
cM capacity (veh/h)	41			117			0	0	114	2	5	47

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	9	1482	1482	2714	1407	0	78
Volume Left	9	0	0	0	0	0	48
Volume Right	0	0	0	0	51	0	29
cSH	41	1700	1700	1700	1700	1700	4
Volume to Capacity	0.23	0.87	0.87	1.60	0.83	0.00	21.75
Queue Length (ft)	19	0	0	0	0	0	Err
Control Delay (s)	117.3	0.0	0.0	0.0	0.0	0.0	Err
Lane LOS	F					A	F
Approach Delay (s)	0.4			0.0		0.0	Err
Approach LOS						A	F

Intersection Summary			
Average Delay	108.4		
Intersection Capacity Utilization	131.9%	ICU Level of Service	H

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	2	2878	3983	4	3	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.85	0.85
Hourly flow rate (veh/h)	2	3029	4193	4	4	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					TWLTL	
Median storage veh)					1	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	4197				5714	2098
vC1, stage 1 conf vol					4195	
vC2, stage 2 conf vol					1519	
vCu, unblocked vol	4197				5714	2098
tC, single (s)	6.1				7.8	6.9
tC, 2 stage (s)					6.8	
tF (s)	3.2				4.0	3.3
p0 queue free %	40				0	100
cM capacity (veh/h)	4				1	44

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	2	1515	1515	2795	1402	4
Volume Left	2	0	0	0	0	4
Volume Right	0	0	0	0	4	0
cSH	4	1700	1700	1700	1700	1
Volume to Capacity	0.60	0.89	0.89	1.64	0.82	2.61
Queue Length (ft)	20	0	0	0	0	32
Control Delay (s)	1475.3	0.0	0.0	0.0	0.0	4837.1
Lane LOS	F					F
Approach Delay (s)	1.0			0.0		4837.1
Approach LOS						F

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	132.5%	ICU Level of Service	H

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	2879	2	7	3982	4	5	0	9	2	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (veh/h)	0	3031	2	7	4192	4	6	0	11	2	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								1			1	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	4196			3033			5142	7242	1516	5734	7241	2098
vC1, stage 1 conf vol							3032	3032		4208	4208	
vC2, stage 2 conf vol							2111	4211		1526	3033	
vCu, unblocked vol	4196			3033			5142	7242	1516	5734	7241	2098
tC, single (s)	4.1			4.6			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.5			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			90			39	100	90	0	100	100
cM capacity (veh/h)	38			72			10	5	110	2	4	44

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	0	2020	1012	7	2794	1401	16	2
Volume Left	0	0	0	7	0	0	6	2
Volume Right	0	0	2	0	0	4	11	0
cSH	1700	1700	1700	72	1700	1700	23	2
Volume to Capacity	0.00	1.19	0.60	0.10	1.64	0.82	0.71	1.36
Queue Length (ft)	0	0	0	8	0	0	52	24
Control Delay (s)	0.0	0.0	0.0	60.5	0.0	0.0	325.4	3303.5
Lane LOS				F			F	F
Approach Delay (s)	0.0			0.1			325.4	3303.5
Approach LOS							F	F

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	132.4%	ICU Level of Service	H

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	16	2583	3881	66	43	8
Peak Hour Factor	0.95	0.95	0.95	0.95	0.85	0.85
Hourly flow rate (veh/h)	17	2719	4085	69	51	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					TWLTL	
Median storage veh)					1	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	4155				5513	2077
vC1, stage 1 conf vol					4120	
vC2, stage 2 conf vol					1393	
vCu, unblocked vol	4155				5513	2077
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	58				0	79
cM capacity (veh/h)	40				5	46

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	17	1359	1359	2724	1431	60
Volume Left	17	0	0	0	0	51
Volume Right	0	0	0	0	69	9
cSH	40	1700	1700	1700	1700	6
Volume to Capacity	0.42	0.80	0.80	1.60	0.84	10.76
Queue Length (ft)	37	0	0	0	0	Err
Control Delay (s)	150.5	0.0	0.0	0.0	0.0	Err
Lane LOS	F					F
Approach Delay (s)	0.9			0.0		Err
Approach LOS						F

Intersection Summary			
Average Delay	86.7		
Intersection Capacity Utilization	131.8%	ICU Level of Service	H

CALCULATION/DESIGN RECORD

Kittelson & Associates, Inc.
Transportation Planning/Traffic Engineering
Baltimore • Ft. Lauderdale • Orlando • Portland
http://www.kittelson.com

DATE 4/16 PROJECT # 8439

PROJECT NAME OR 22

SUBJECT SEGMENT V/C OR 22 BY JXH SHEET # OF

2030 NO-BUILD 30th HOUR

→ GREENWOOD TO OR 51
WB VOL = 3080
EB VOL = 2510

→ OR 51 TO 50th
WB VOL = ~~4100~~ 3920
EB VOL = ~~3850~~ 2910

→ 50th TO DOAKS FERRY
WB VOL = 4140 3950
EB VOL = 2910 3000

HCS2000: Multilane Highways Release 4.1f

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: JXH
Agency/Co: Kittelson
Date: 4/10/2007
Analysis Period: Future 2030 NoBuild PM
Highway: OR 22
From/To: Greenwood to OR 51
Jurisdiction: ODOT
Analysis Year: 2030
Project ID:

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	5		6	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0*	mph	0.0*	mph
Access points adjustment, FA	1.3	mph	1.5	mph
Free-flow speed	53.8	mph	53.5	mph

VOLUME

Direction	1		2	
Volume, V	2510	vph	3080	vph
Peak-hour factor, PHF	0.95		0.95	
Peak 15-minute volume, v15	661		811	
Trucks and buses	2	%	2	%
Recreational vehicles	1	%	1	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.988		0.988	
Flow rate, vp	1336	pcphpl	1640	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	1336	pcphpl	1640	pcphpl
Free-flow speed, FFS	53.8	mph	53.5	mph
Avg. passenger-car travel speed, S	53.8	mph	52.5	mph
Level of service, LOS	C		D	
Density, D	24.9	pc/mi/ln	31.2	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

HCS2000: Multilane Highways Release 4.1f

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	JXH
Agency/Co:	Kittelson
Date:	4/10/2007
Analysis Period:	Future 2030 NoBuild PM
Highway:	OR 22
From/To:	OR 51 to 50th Ave
Jurisdiction:	ODOT
Analysis Year:	2030
Project ID:	

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	6		6	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0*	mph	0.0*	mph
Access points adjustment, FA	1.5	mph	1.5	mph
Free-flow speed	53.5	mph	53.5	mph

VOLUME

Direction	1		2	
Volume, V	2910	vph	3920	vph
Peak-hour factor, PHF	0.95		0.95	
Peak 15-minute volume, v15	766		1032	
Trucks and buses	2	%	2	%
Recreational vehicles	1	%	1	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.988		0.988	
Flow rate, vp	1549	pcphpl	2087	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	1549	pcphpl	2087	pcphpl
Free-flow speed, FFS	53.5	mph	53.5	mph
Avg. passenger-car travel speed, S	53.0	mph		mph
Level of service, LOS	D		F	
Density, D	29.2	pc/mi/ln		pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

HCS2000: Multilane Highways Release 4.1f

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: JXH
Agency/Co: Kittelson
Date: 4/10/2007
Analysis Period: Future 2030 NoBuild PM
Highway: OR 22
From/To: 50th Ave to Doaks
Jurisdiction: ODOT
Analysis Year: 2030
Project ID:

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	6		6	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0*	mph	0.0*	mph
Access points adjustment, FA	1.5	mph	1.5	mph
Free-flow speed	58.5	mph	58.5	mph

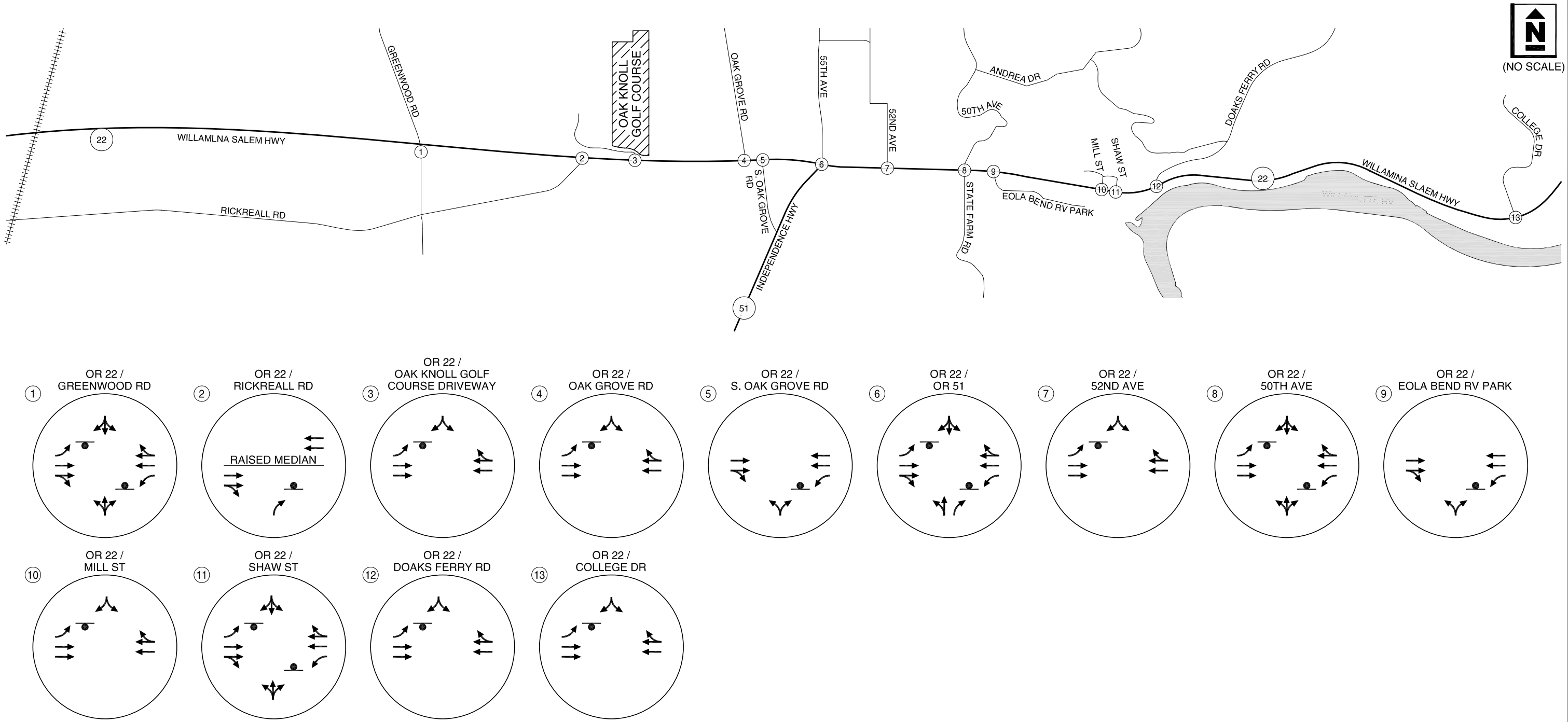
VOLUME

Direction	1		2	
Volume, V	3000	vph	3950	vph
Peak-hour factor, PHF	0.95		0.95	
Peak 15-minute volume, v15	789		1039	
Trucks and buses	2	%	2	%
Recreational vehicles	1	%	1	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.988		0.988	
Flow rate, vp	1597	pcphpl	2103	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	1597	pcphpl	2103	pcphpl
Free-flow speed, FFS	58.5	mph	58.5	mph
Avg. passenger-car travel speed, S	57.7	mph	54.4	mph
Level of service, LOS	D		E	
Density, D	27.7	pc/mi/ln	38.7	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.



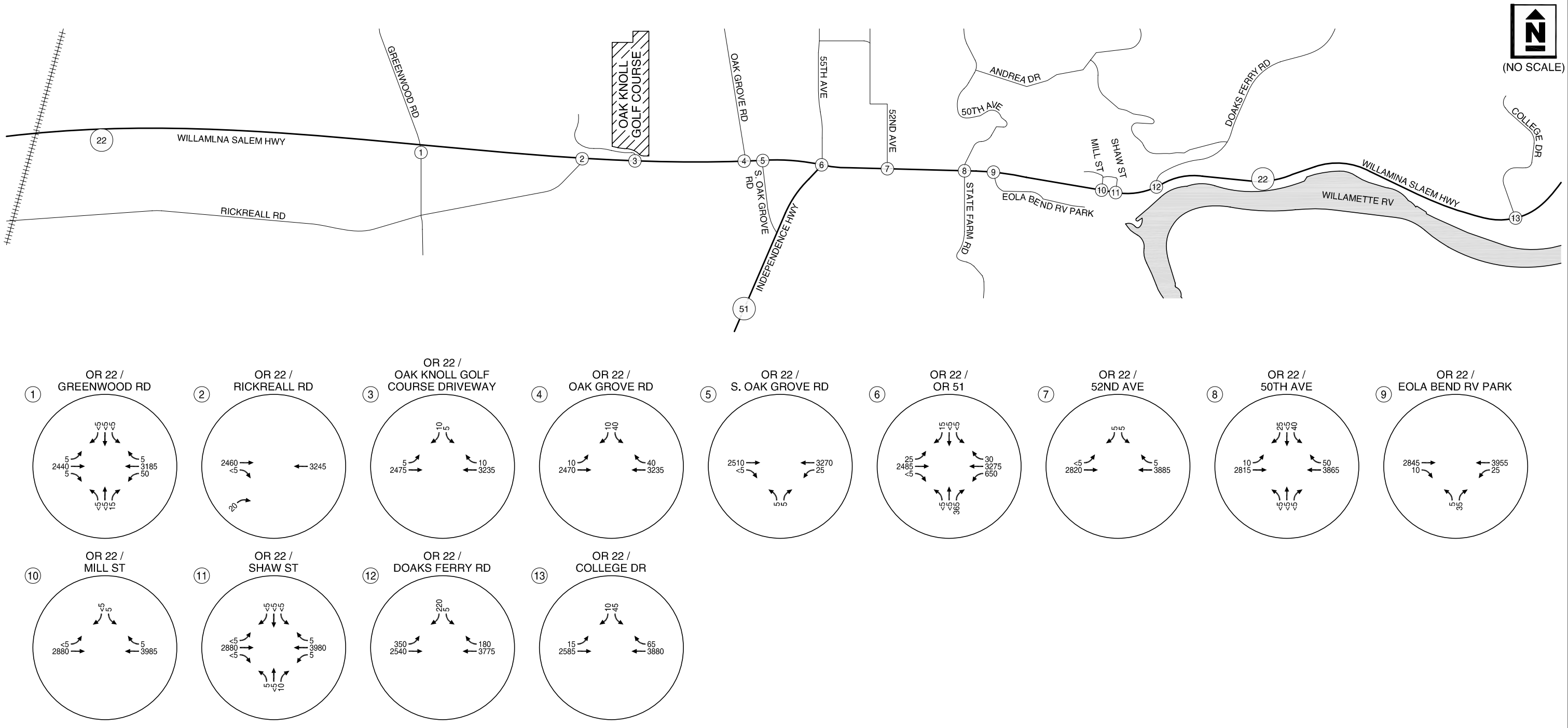
LEGEND

CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

H:\projfile\8439 - Oregon 22 & Oregon 51 EMP\dwgs\figs\8439Fig1.dwg May 08, 2007 - 10:59am - mhughart Layout Tab: Fig03

2030 NO-BUILD ASSUMED LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES

FIGURE 3



LEGEND

CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

YEAR 2030 FUTURE TRAFFIC CONDITIONS
30TH HOUR BALANCED TRAFFIC VOLUMES

FIGURE 4

APPENDIX E

Lane Inventory and Geometry

This appendix includes data sheets on the lane inventory and horizontal geometry of OR 22.

OR 22 (W) Evaluation Criteria for Alternatives

PREPARED FOR:	Dan Fricke/ODOT Project Coordinator Project Management Team
PREPARED BY:	Larry Weymouth/CH2M HILL
COPIES:	Consultant Team File
DATE:	June 28, 2007
PROJECT NUMBER:	356019.01.04

This technical memorandum is largely based upon an existing document developed during earlier efforts of the project management team. Criteria are grouped according to three categories: Transportation Operations, Project Impacts, and Implementation. New to the list of evaluation criteria are Plan Consistency and Flexibility.

Evaluation Critera

The evaluation criteria for the OR 22(W) EMP will be used by PMT/TAC to evaluate the performance of each alternative against a broad range of important project characteristics, representing a full range of stakeholder values. The evaluation criteria tie back to the project's problem statement, and need to highlight differences among alternatives.

The evaluation process is based on a comparison of quantitative data, such as for mobility, land use, economic data, and costs; and qualitative data with supporting facts, such as for operations, environmental impacts, and construction phasing. Alternatives will be ranked according to a "consumer reports" type of scale made up of the following four options:

●	Alternative directly and positively addresses the intent of the criterion.
◖	Alternative partially meets the intent of the criterion, addressing some but not all of the objectives.
○	Alternative does not support the intent of, or negatively impacts, the criterion.
N/A	Alternative neither meets nor does not meet the intent of the criterion. Criterion does not apply.

The final draft evaluation criteria are described as follows.

Transportation Operations

MOBILITY

Objective: To provide a viable transportation solution that accommodates future growth as described in the Salem and Polk County Comprehensive Plans, meeting appropriate mobility standards for the Statewide Expressway and Freight Route (measured as a ratio of volume to capacity (v/c) for state facilities), and addressing regional travel needs of residents, businesses, and industries. Relevant Oregon Highway Plan (OHP) mobility standards are 0.70 outside the MPO (west of the Oak Grove Road boundary) and 0.80 inside the MPO (east of the Oak Grove Road boundary); ODOT Highway Design Manual (HDM) mobility standards for the expressway are 0.65 outside the MPO and 0.75 inside the MPO.

Measure: OHP v/c for no-build, and HDM v/c for build alternatives.

- ● Alternative improves expected future traffic flow along OR 22(W) corridor when compared to the future no-build alternative. The corridor and highway approaches at all study intersections meet the relevant mobility standards.
- ◖ Alternative improves expected future traffic flow along OR 22(W) corridor when compared to the future no-build alternative. The corridor and the majority of study intersections meet the relevant mobility standards.
- ○ Expected future traffic flow conditions along OR 22(W) corridor for alternative are the same or worse when compared to the future no-build alternative. The corridor and/or the majority of study area intersections do not meet the relevant mobility standards.
- N/A Alternative neither meets nor does not meet the intent of the criterion. Criterion does not apply.

ACCESS MANAGEMENT

Objective: Address relevant state access management standards as outlined in OAR 734-051 (Division 51) for the OR 22(W) corridor, including spacing between interchanges, between interchange tapers, between entrance and exit ramps along a highway segment, and between public and private approaches on statewide highways. The relevant spacing standards include 1.9 miles between interchanges (measured between crossroad centerlines), 1 mile between the start and end of tapers of adjacent interchanges, 1,320 feet between an interchange ramp terminal and the next access point, and 2,640 feet between public and private at-grade approaches along a statewide highway and expressway.

Measure: Spacing (feet) between interchanges and between access points.

- ● New access or improvements recommended by the alternative are consistent with state highway access management standards.
- ◖ New accesses or improvements recommended by the alternative contain access spacing provisions, or improve access management over existing conditions. Though access spacing standards are not met, spacing is moving toward meeting the standard.
- ○ Alternative, through provision of new access or improvements, causes additional conflicts between the state highway, local roads, and/or private

driveways.

N/A Alternative neither meets nor does not meet the intent of the criterion. Criterion does not apply.

CONNECTIVITY

Objective: Support ODOT, Polk County, SKATS, and City of Salem goals for providing direct and efficient access to and between industrial and commercial centers, regional intermodal freight facilities, and statewide transportation corridors.
Measure: Travel distance.

● Alternative provides new connection or facility that provides direct and efficient access; or substantially improves access of an existing connection point or facility.

◖ Alternative has slight or no improvement to connection point or facility.,

○ Alternative limits or reduces transportation options or connectivity.

N/A Alternative neither meets nor does not meet the intent of the criterion. Criterion does not apply.

SAFETY

Objective: To reduce conflicts and improve operational safety for all current and future users of the corridor, including autos, freight, transit, bicyclists, and pedestrians. Minimize emergency response times.
Measure: Number of potential conflict points/movements, comparison of alternative with design standards, impact on Top 10% SPIS sites, qualitative assessment of change in emergency response times.

● Alternative addresses known operational safety issues, reduces potential conflicts, and does not add new operational safety concerns. Emergency response times are improved.

◖ Alternative does not add new operational safety concerns, does not directly address or minimally address known safety issues, and/or neither improves nor harms emergency response times.

○ Alternative adds conflict points or otherwise creates additional safety problems for users, and may increase emergency response times.

N/A Alternative neither meets nor does not meet the intent of the criterion. Criterion does not apply.

Project Impacts

NATURAL ENVIRONMENT

Objective: To avoid, minimize, and/or mitigate impacts to environmentally sensitive areas.
Measure: Qualitative assessment of alternative's impact to farm, forest, and wetlands; qualitative assessment of alternative's impact on wildlife and air quality.

● Alternative enhances or has no adverse impacts to environmentally

sensitive areas, on wildlife habitat, and air quality.

◖ Alternative has minimal adverse impacts on environmentally sensitive areas, on wildlife habitat, and air quality, which are expected to be not difficult to mitigate.

○ Alternative has adverse impacts on environmentally sensitive areas, on wildlife habitat, and air quality that are considered substantial and/or may not easily be mitigated.

N/A Alternative neither meets nor does not meet the intent of the criterion. Criterion does not apply.

BUILT ENVIRONMENT (LAND USE AND SOCIAL)

Objective: To avoid, minimize, and/or mitigate impacts to the built environment, including impacts to developable lands, historic properties, and low income, elderly, or minority populations.
Measure: Number of acres of developable lands displaced; number of low income, elderly, or minority populations displaced; number of residences displaced; amount and level of impact on historic properties; ability to appropriately mitigate impacts.

● Alternative avoids or contains minimal impacts to developable lands; residential parcels, and historic properties.

◖ Alternative has minor impacts to developable lands, residential parcels, and/or historic properties, which are expected to be mitigated.

○ Alternative has impacts to developable lands, residential parcels, and/or historic properties that are considered substantial and/or may not easily be mitigated.

N/A Alternative neither meets nor does not meet the intent of the criterion. Criterion does not apply.

BUSINESS (ECONOMIC DEVELOPMENT/DISPLACEMENT)

Objective: Recommended transportation improvements that are supportive of, and provide access to, business and industry in the area and will minimize need for business relocation or elimination.
Measure: Number of businesses to be impacted by alternative, including impacts such as relocation or elimination, reduced parking, limited access, and lower employment .

● Results in no relocation/elimination or other harmful impacts to an existing operating business.

◖ Minimal relocation/elimination (<5) of operating businesses or vacant buildings; or reduces parking, access, or employment.

○ Significant relocation/ elimination (>5) of operating businesses or vacant buildings;or significantly reduces parking, access, or employment.

N/A Alternative neither meets nor does not meet the intent of the criterion. Criterion does not apply.

Implementation

PLAN CONSISTENCY

Objective: To implement project(s) consistent with federal, state, county, regional, and city plans.
Measure: Statement of consistency from government authorities or note of inconsistent elements.

●	Alternative is consistent with plans and no amendment is required.
◖	Alternative requires a straightforward plan amendment.
○	Alternative requires a goals exception.
N/A	Alternative neither meets nor does not meet the intent of the criterion. Criterion does not apply.

FLEXIBILITY

Objective: To implement project(s) withpotential for phasing or separable components and fundable.
Measure: Number of phases or separable components possible and fundable.

●	Alternative can be a phase of a larger project or separated into components in many ways and funded.
◖	Alternative can be a phase of a larger project or separated into components in only a few ways and funded.
○	Alternative cannot be a phase of a larger project nor separated into components and funded.
N/A	Alternative neither meets nor does not meet the intent of the criterion. Criterion does not apply.

COST

Objective: To serve as a strong steward of public funds, providing a balanced, fundable solution with opportunities for local funding leverage.
Measure: Planning-level cost estimates; comparison of project alternatives with other projects around the state for funding competitiveness purposes; cost-effectiveness; benefit-cost ratio.

●	Alternative provides a balanced, fundable solution with opportunities for local funding.
◖	Alternative may be balanced but funding competitiveness is uncertain.
○	Alternative is not competitive for state and/or federal funds, and/or does not provide opportunities to leverage local funds.
N/A	Alternative neither meets nor does not meet the intent of the criterion. Criterion does not apply.

APPENDIX F

Evaluation Criteria

This appendix includes a technical memorandum that describes the criteria used to screen and evaluate alternatives.

OR 22 (W) Evaluation Criteria for Alternatives

PREPARED FOR:	Dan Fricke/ODOT Project Coordinator Project Management Team
PREPARED BY:	Larry Weymouth/CH2M HILL
COPIES:	Consultant Team File
DATE:	June 28, 2007
PROJECT NUMBER:	356019.01.04

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Evaluation Critera

The evaluation criteria for the OR 22(W) EMP will be used by PMT/TAC to evaluate the performance of each alternative against a broad range of important project characteristics, representing a full range of stakeholder values. The evaluation criteria tie back to the project's problem statement, and need to highlight differences among alternatives.

The evaluation process is based on a comparison of quantitative data, such as for mobility, land use, economic data, and costs; and qualitative data with supporting facts, such as for operations, environmental impacts, and construction phasing. Alternatives will be ranked according to a "consumer reports" type of scale made up of the following four options:

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Measure: OHP v/c for no-build, and HDM v/c for build alternatives.

- ● Alternative improves expected future traffic flow along OR 22(W) corridor when compared to the future no-build alternative. The corridor and highway approaches at all study intersections meet the relevant mobility standards.
- ◖ Alternative improves expected future traffic flow along OR 22(W) corridor when compared to the future no-build alternative. The corridor and the majority of study intersections meet the relevant mobility standards.
- ○ Expected future traffic flow conditions along OR 22(W) corridor for alternative are the same or worse when compared to the future no-build alternative. The corridor and/or the majority of study area intersections do not meet the relevant mobility standards.
- N/A Alternative neither meets nor does not meet the intent of the criterion. Criterion does not apply.

ACCESS MANAGEMENT

Objective: Address relevant state access management standards as outlined in OAR 734-051 (Division 51) for the OR 22(W) corridor, including spacing between interchanges, between interchange tapers, between entrance and exit ramps along a highway segment, and between public and private approaches on statewide highways. The relevant spacing standards include 1.9 miles between interchanges (measured between crossroad centerlines), 1 mile between the start and end of tapers of adjacent interchanges, 1,320 feet between an interchange ramp terminal and the next access point, and 2,640 feet between public and private at-grade approaches along a statewide highway and expressway.

Measure: Spacing (feet) between interchanges and between access points.

- ● New access or improvements recommended by the alternative are consistent with state highway access management standards.
- ◖ New accesses or improvements recommended by the alternative contain access spacing provisions, or improve access management over existing conditions. Though access spacing standards are not met, spacing is moving toward meeting the standard.
- ○ Alternative, through provision of new access or improvements, causes additional conflicts between the state highway, local roads, and/or private

driveways.

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CONNECTIVITY

Objective: Support ODOT, Polk County, SKATS, and City of Salem goals for providing direct and efficient access to and between industrial and commercial centers, regional intermodal freight facilities, and statewide transportation corridors.
Measure: Travel distance.

● Alternative provides new connection or facility that provides direct and efficient access; or substantially improves access of an existing connection point or facility.

◖ Alternative has slight or no improvement to connection point or facility.,

○ Alternative limits or reduces transportation options or connectivity.

N/A Alternative neither meets nor does not meet the intent of the criterion. Criterion does not apply.

SAFETY

Objective: To reduce conflicts and improve operational safety for all current and future users of the corridor, including autos, freight, transit, bicyclists, and pedestrians. Minimize emergency response times.
Measure: Number of potential conflict points/movements, comparison of alternative with design standards, impact on Top 10% SPIS sites, qualitative assessment of change in emergency response times.

● Alternative addresses known operational safety issues, reduces potential conflicts, and does not add new operational safety concerns. Emergency response times are improved.

◖ Alternative does not add new operational safety concerns, does not directly address or minimally address known safety issues, and/or neither improves nor harms emergency response times.

○ Alternative adds conflict points or otherwise creates additional safety problems for users, and may increase emergency response times.

N/A Alternative neither meets nor does not meet the intent of the criterion. Criterion does not apply.

Project Impacts

NATURAL ENVIRONMENT

Objective: To avoid, minimize, and/or mitigate impacts to environmentally sensitive areas.
Measure: Qualitative assessment of alternative's impact to farm, forest, and wetlands; qualitative assessment of alternative's impact on wildlife and air quality.

● Alternative enhances or has no adverse impacts to environmentally

sensitive areas, on wildlife habitat, and air quality.

◖ Alternative has minimal adverse impacts on environmentally sensitive areas, on wildlife habitat, and air quality, which are expected to be not difficult to mitigate.

○ Alternative has adverse impacts on environmentally sensitive areas, on wildlife habitat, and air quality that are considered substantial and/or may not easily be mitigated.

N/A Alternative neither meets nor does not meet the intent of the criterion. Criterion does not apply.

BUILT ENVIRONMENT (LAND USE AND SOCIAL)

Objective: To avoid, minimize, and/or mitigate impacts to the built environment, including impacts to developable lands, historic properties, and low income, elderly, or minority populations.
Measure: Number of acres of developable lands displaced; number of low income, elderly, or minority populations displaced; number of residences displaced; amount and level of impact on historic properties; ability to appropriately mitigate impacts.

● Alternative avoids or contains minimal impacts to developable lands; residential parcels, and historic properties.

◖ Alternative has minor impacts to developable lands, residential parcels, and/or historic properties, which are expected to be mitigated.

○ Alternative has impacts to developable lands, residential parcels, and/or historic properties that are considered substantial and/or may not easily be mitigated.

N/A Alternative neither meets nor does not meet the intent of the criterion. Criterion does not apply.

BUSINESS (ECONOMIC DEVELOPMENT/DISPLACEMENT)

Objective: Recommended transportation improvements that are supportive of, and provide access to, business and industry in the area and will minimize need for business relocation or elimination.
Measure: Number of businesses to be impacted by alternative, including impacts such as relocation or elimination, reduced parking, limited access, and lower employment .

● Results in no relocation/elimination or other harmful impacts to an existing operating business.

◖ Minimal relocation/elimination (<5) of operating businesses or vacant buildings; or reduces parking, access, or employment.

○ Significant relocation/ elimination (>5) of operating businesses or vacant buildings;or significantly reduces parking, access, or employment.

N/A Alternative neither meets nor does not meet the intent of the criterion. Criterion does not apply.

Implementation

PLAN CONSISTENCY

Objective: To implement project(s) consistent with federal, state, county, regional, and city plans.
Measure: Statement of consistency from government authorities or note of inconsistent elements.

●	Alternative is consistent with plans and no amendment is required.
◖	Alternative requires a straightforward plan amendment.
○	Alternative requires a goals exception.
N/A	Alternative neither meets nor does not meet the intent of the criterion. Criterion does not apply.

FLEXIBILITY

Objective: To implement project(s) withpotential for phasing or separable components and fundable.
Measure: Number of phases or separable components possible and fundable.

●	Alternative can be a phase of a larger project or separated into components in many ways and funded.
◖	Alternative can be a phase of a larger project or separated into components in only a few ways and funded.
○	Alternative cannot be a phase of a larger project nor separated into components and funded.
N/A	Alternative neither meets nor does not meet the intent of the criterion. Criterion does not apply.

COST

Objective: To serve as a strong steward of public funds, providing a balanced, fundable solution with opportunities for local funding leverage.
Measure: Planning-level cost estimates; comparison of project alternatives with other projects around the state for funding competitiveness purposes; cost-effectiveness; benefit-cost ratio.

●	Alternative provides a balanced, fundable solution with opportunities for local funding.
◖	Alternative may be balanced but funding competitiveness is uncertain.
○	Alternative is not competitive for state and/or federal funds, and/or does not provide opportunities to leverage local funds.
N/A	Alternative neither meets nor does not meet the intent of the criterion. Criterion does not apply.

APPENDIX G

Project 22 Report (W&H Pacific, June 2005)

This appendix includes the report and appendixes prepared in June 2005 by consulting firm W&H Pacific for the County, titled “Project 22: Hwy 22/51 Interchange Implementation Strategy.”.

PROJECT DELIVERY CONCEPTS AND STRATEGY REPORT

Project 22: Hwy 22/51 Interchange Implementation Strategy

Willamina-Salem Highway (ODOT No. 30 / OR22)

Independence Highway (ODOT No. 193 / OR51)

Polk County, Oregon

ODOT Region 2

RECEIVED
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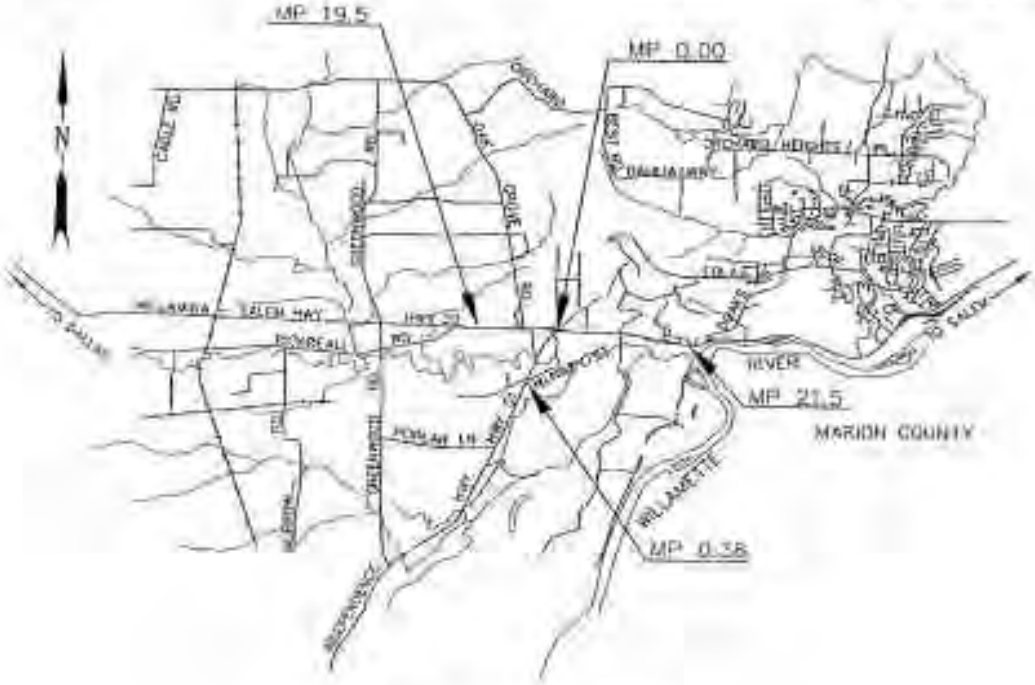
O.D.O.T. Region 2



Prepared for
Polk County, Oregon

Prepared by
W&H Pacific, Inc.
3470 Pipebend Place NE, Suite 170
Salem, OR 97301

May 17, 2005
Revised June 20, 2005

EXECUTIVE SUMMARY

Polk County officials have made Project 22 their top transportation priority. The County Commission has taken an active role in supporting the project, and has worked with the Oregon Congressional Delegation, the Oregon Department of Transportation, and MWACT in an effort to secure funding.

The first major project in the expressway corridor was the Rickreall Interchange Project at the intersection of Highway 99 and Highway 22. This $20 Million project began construction in 2005 and will be completed in 2006.

The next major project is the Independence Interchange where Highway 22 and Highway 51 intersect. The State and the County will shift their focus to delivering the project in phases. Financial and political support will be needed to successfully implement this project. ODOT and the MWVCOG are jointly developing an expressway management plan in which ODOT is establishing long range plans for the Highway 22 expressway corridor.

In the meantime, county officials feel that portions of the project can precede the interchange itself in development, as the County has secured some funding, a $3 million earmark from Borders and Corridors program, and $1 million from the Oregon Department of Transportation (ODOT) STIP. County has assigned W&H Pacific to develop a strategy to design and construct the expressway projects (frontage and backage roads) in the area of the interchange in smaller phases that, once constructed, can improve the operation and safety of the highway system.

This phased approach is based on an assumption that the environmental work for each phase is limited to the impacts of that work. However, if a larger, Independence Interchange all encompassing environmental document is required and includes the small project impacts, then the phases' design work must wait until completion of the overall environmental document.

This document concentrates on the local system portions of the Independence Interchange Project. This strategy provides coordination with the State's larger corridor project, but does not focus on performing work on the State system – only the minimum necessary for the County work to connect to the State system, and be compatible to long-term plans and requirements of the corridor expressway management plan.

With that said, the County work focuses on providing local frontage and backage roads and alternative access points to serve businesses and landowners in advance of the interchange project, and independent of the State system. Smaller project phases also set the stage for future interchange construction and closure of the single-point private accesses to the State system by providing the alternate access.

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PURPOSE AND NEED

In late April, 2005 Polk County commissioned W&H Pacific to develop a conceptual report to advance the Highway 22/51 Interchange Project from concept through construction. The genesis of the report effort is driven by the ownership Polk County officials have for the Highway 22 and Highway 51 corridors, and the notion the County should provide local area leadership to support the Oregon Department of Transportation's (ODOT) efforts to design and construct the project. County officials have publicly declared the project their top transportation priority, and are actively working with Oregon's Congressional Delegation to assist ODOT in securing Federal funding for the project.

In this report, Project 22: Highway 22/51 Interchange Implementation Strategy, County officials requested implementation concepts be investigated that would identify a clear, logical approach to fund, develop the design, perform environmental work, and construct the project in phases. *The sequence of project phases examined in this report does not include projects on the expressway roadway, but rather focuses on the delivery of the frontage road system projects necessary to safely operate the interchange after construction.* The phases individually would operate and function to support the needs and requirements of this urban and rural Highway 22 Expressway (Oregon Transportation Commission approval in June 1996), and be entirely compatible with the ODOT Highway 22 Expressway Management Plan requirements. This management plan is currently being developed jointly by ODOT Region 2 and the Mid Willamette Valley Council of Governments (MWVCOG), and should be completed in early 2006.

Equally important, the project phases must be included in the Salem-Keizer Area Transportation Study's (SKATS) Financially Constrained Transportation Plan. In this plan, projects listed must have funding or have reasonable expectations that funding will be secured, such as a listing in ODOT's Surface Transportation Improvement Program (STIP), Development or Construction Sections.

According to Richard Schmid of the MWVCOG, adding phases of a large project incrementally to the financially constrained plan in a logical sequence makes sense, and enables projects to become reality over time, rather than delaying a very large expensive project until fully funded. Historically, ODOT has successfully developed many large projects in phases, particularly interstate projects and projects in urban areas. Once in the financially constrained plan, the phase must meet the purpose, function, and operational needs of its respective role in the whole project. This assures compatibility with the MWVCOG planning process, to which Polk County is fully committed.

This report provides two primary deliverables in addition to the above strategy of phaseable project development that include:

1) Identify frontage or backage roads as project phases (Options in this report) that can be added to the MWVCOG financially constrained plan and to the Development Section of the ODOT STIP, and to build a "shelf" project ready for construction.

2) Identify complete frontage or backage roads that can be added to the MWVCOG financially constrained plan and programmed in the 2008 STIP for construction. These options, when built, collectively support the safe operation of an interchange at the intersection of Highway 22 and Highway 51 *in advance of the interchange, or included in the interchange project, depending on available funding.*

PROJECT BACKGROUND

Polk County is a small rural county that lies between the rapidly growing Willamette Valley and the Oregon Coast. Highway 22 West is the critical link that supports Polk County and connects the larger communities of Dallas, Salem, Monmouth, and Independence. Virtually every state highway within the County connects to or intersects this highway. Until recent years, the highway has adequately met the needs of the County and the State.

However, Polk County began experiencing a substantial increase in traffic volumes several years ago. From 1990 to 2000 the county population has grown at a rate of 26%, while the traffic rate has grown at an unprecedented 46%. Attractions along and at the end of the highway has generated a significant influx of high-speed traffic. The increase in traffic created a corresponding increase in the number of traffic accidents, injuries and fatalities (83% of the County's fatalities occur on this State highway alone).

Polk County and ODOT became aware of the dangerous situation and declared the highway a "Safety Corridor" in 1993. ODOT, in partnership with Polk County, has corrected many of the dangers on Highway 22 West through physical improvements and support programs, which were the result of ODOT Region 2's 1995 Interim Strategy for the Highway 22 Corridor. Despite these ambitious efforts, the problem areas between Dallas and Salem continue to worsen.

Highway 22 West is no longer being used for the purpose for which it was originally designed. In reality, it is now comprised of two different roads, both competing for the same space. The first is a local transportation corridor serving local business traffic; school buses and slow moving farm equipment frequently cross it. The second is a high-speed expressway serving the central Willamette Valley and carrying millions of people intent upon visiting the Central Oregon Coast and the many regional attractions along the route. This situation creates a deadly combination often resulting in accidents, injuries, and the loss of human life. (The fatality rate in this particular section of the highway is 2.5 times greater than the national traffic fatality averages for a facility of this type.)

Polk County has identified several steps which must be taken to improve the safety of Highway 22 West. These steps collectively are known as Polk County - Project 22. The goals:

- Provide a safe means for local and expressway traffic to share the road. Where necessary, separate the traffic to substantially reduce the number of accidents caused

by access, egress and speed differentials. (Frontage Roads and limited highway access)

- Divide traffic along the entire length of the road, thereby eliminating the incidence of head-on collisions. (Median Barrier separation of traffic)

Polk County has obtained a $3M earmark from the Borders and Corridors program and another $1M from the STIP. ODOT is using approximately $250,000 of the funding to complete an Expressway Management Plan, the first of its kind for ODOT, from Greenwood Road to Doaks Ferry Road. This is a joint effort by the MWVCOG and ODOT and should be completed in early 2006.

ODOT's current plan, approved by the Oregon Transportation Commission (OTC) on May 11, 2000, calls for the design and construction of a Highway 22 expressway from Salem to The Kings Valley Highway, near Dallas. A divided expressway will safely accommodate large volumes of traffic at high speeds, and require minimization and/or elimination of local at-grade access to the highway. Both a high volume divided roadway and limited access meet the Polk County goals noted above.

ODOT has evaluated several alignment and interchange alternatives and has made one public hearing presentation in September 2004. This consultant met with and reviewed ODOT's design effort to date, and agrees the design is solid in concept, operation and safety provisions, and solves local access issues. The design is well suited for the site culture and topography restrictions, and has been endorsed by Polk County.

ODOT's plan calls for the construction of an interchange at the intersection of Highway 51 with Highway 22. Highway 51 is presently an uncontrolled intersection. A single turn lane exists on Highway 22 eastbound allowing traffic to turn south onto Highway 51. Highway 22 westbound also has a turn lane that requires traffic to cross on-coming traffic. No turn lanes exist to assist access to the north of Highway 22. This dangerous intersection requiring cars to cross high speed on-coming traffic. Polk County considers the intersection of Highway 51 and Highway 22 as a critical and essential safety project and is the County's top transportation priority.

To that end, the County wants to use the remaining $3.75M of funds to get phaseable projects "shelf-ready" for construction as soon as possible. These "appendage" projects will support the interchange and the operation of the expressway subsequent to their construction. Polk County also wants to continue securement of funds for the construction of the interchange in 2008.

STRATEGY

Polk County understands that to complete all the expressway work as one project will be expensive and not likely to occur in the near future. (ODOT is currently estimating the expressway work to be in excess of $100M) The County realizes that to accomplish this work the project must be divided into smaller, more manageable pieces, or phases.

Since the construction of the interchange at the intersection of Highway 51 and Highway 22 is Polk County's highest transportation priority, the County would like to focus its efforts at this location.

Polk County has $3.75M currently available for use. They would like to use that $3.75M to "seed" the design and construction of the interchange by constructing useful portions (phases) of frontage roads as soon as possible that coordinate with ODOT's long-range plan. During this same time they want to secure approximately $30-35M to be used for constructing the interchange and/or the remaining frontage roads in 2008. (Two members of the Oregon Congressional Delegation have publicly declared their support for the corridor improvements and interchange project).

Polk County supports the interchange design concept developed by ODOT for the intersection of Highway 51 and Highway 22. ODOT estimated the construction costs fo the interchange to be $19.5M. This value does not include right-of-way acquisition or associated environmental costs.

ODOT's estimate for the frontage/backage roads in the project area is $80M. Polk County has asked this consultant to assess simple and practical frontage/backage road options that support the safe operation of a future interchange. Polk County has requested this consultant to identify and assess portions of those frontage/backage roads that could be constructed quickly.

Criteria considered when evaluating these options include:

- Section of Highway 22 from the Willamette River Bridges in Salem to the Kings Valley Highway, near Dallas, was approved by the OTC as an "Expressway" and will warrant a 6-lane configuration in the future.
- Per the Oregon Highway Plan (OHP), the functional classification for the Willamina-Salem Highway to MP 23.61 is "Rural Principal Arterial – Other" and from MP 23.61 to MP 26.14 it is Urban Principal Arterial – Other Freeway or Expressway.
- This report's evaluation limits along the Willamina-Salem Highway No. 30 are from MP 19.5 to MP 21.5, and along the Independence Highway No. 193 from MP 0 to MP 0.38, and 55th Ave from Highway 22 to Aster Road. This represents the area around the proposed interchange, and is shown on the vicinity map on this report's cover.
- The intersection of Highway 51 with Highway 22 is located at MP 20.37. This is 3.24 miles westerly of the urban designated functional classification for the roadway. There is little difference between the business district from MP 23.61 to MP 26.14 and that found from MP 20.37 to MP 23.61. The Salem UGB is located east of

Doaks Ferry Road which is near MP 22. A portion of the community of Eola is inside the MPO.

- There are several factors that suggest a significant change in character of the highway at the intersection of Highway 51 with Highway 22 at MP 20.37, rather than at MP 23.61. If this was the case, urban criteria would prevail east of the intersection and control the distance between access points.
- ODOT's findings indicate that a separated grade is required at the Highway 22/51 intersection to provide efficient operation and safety improvements.
- The expressway/interchange will require median barrier to be installed to separate eastbound and westbound traffic on Highway 22.
- Median barrier must be installed when the interchange is constructed.
- All accesses to Highway 22 will be closed and traffic diverted to frontage or backage roads when the interchange is constructed.

Until the interchange is constructed:

- Channel available funding for on "on-the-ground" construction vs. right-of-way or studies.
- Consider local roads (highway frontage and backage roads) that provide access to businesses and landowners, and connect to the existing local roads and state highways at acceptable locations, and within budget amounts on-hand.
- Maintain existing public access points along highway until projects are constructed. Completion of frontage/backage road projects will allow access at grade to be closed if properties are served by the frontage/backage roads.
- Consider right-in/right-out accesses for the interim.
- Avoid installing median barrier until interchange or frontage/backage roads are constructed.
- Construct permanent facilities that will not have to be revised when the interchange is built; no "throw-away".

RECOMMENDATIONS w/ estimated cost & schedule

W&H Pacific has reviewed ODOT's long-range "Expressway" plan as presented in the September 2004 Public Hearing. W&H Pacific has also reviewed ODOT's interchange design for the intersection of Highway 22 and Highway 51.

W&H Pacific and Polk County agree with and support ODOT's interchange design as appropriate for the traffic patterns and volumes at this location.

Several frontage/backage road options, with their associated "total cost" estimate to construct, were evaluated. The options are described in more detail in Appendix A.

To meet the goals of Polk County, W&H Pacific recommends the following phased construction of the frontage and/or backage roads in the vicinity of the planned interchange:

PHASE DESCRIPTION W/ ESTIMATED COST & SCHEDULE

		Est'd Cost	Year
Phase 1	NE Frontage Road Improvements		
1.1	Conduct Expressway Planning	$250,000	2006
1.2	Perform environmental work for Options NE-1b, NE-2a, NW-1a, NW-1b, NW-3a, NW-4, SW-1, and SW-2 that support ODOT's long-range frontage/backage road plan.	$800,000	2007
1.3	Perform engineering work for Options NE-1b, NE-2a, NW-1a, NW-1b, NW-3a, NW-4, SW-1, and SW-2 that support ODOT's long-range frontage/backage road plan.	$1,752,000	2007
1.4	Perform right-of-way work for Options NE-1b, NE-2a, NW-1a, NW-1b, NW-3a, NW-4, SW-1, and SW-2 that support ODOT's long-range frontage/backage road plan.	$377,000	2008
1.5	Construct Options NE-1b, NE-2a. Close private accesses to Highway 22 and leave open public road accesses at 50th Ave and 52nd Ave.	$1,485,000	2009
	Total	$4,664,000.00	
Phase 2	NW & SW Frontage Road Improvements		
2.1	Perform environmental work for Options SE-1a and SE-1b that support ODOT's long-range frontage/backage road plan.	$400,000	2007
2.2	Perform engineering work for Options SE-1a and SE-1b that support ODOT's long-range frontage/backage road plan.	$1,322,000	2007
2.3	Perform right-of-way work for Options SE-1a and SE-1b that support ODOT's long-range frontage/backage road plan.	$279,000	2008
2.4	Construct Options NW-1a, NW-1b, NW-3a, NW-4, SW-1, and SW-2. Close all accesses to Highway 22, including public accesses from Oak Grove Road and South Oak Grove Road.	$2,895,000	2009
	Total	$4,896,000.00	
Phase 3	SE Frontage Road Improvements		
3.1	Perform environmental work for the Interchange	$400,000	2010
3.2	Perform engineering work for the Interchange	$2,000,000	2011
3.3	Perform right-of-way work for the Interchange	$100,000	2012
3.4	Construct Options SE-1a and SE-1b Note: construction of the SE backage road options and the Interchange are planned for the same year, therefore, all existing accesses to Highway 22 will be closed in conjunction with the opening of the interchange. Also close access in NE quadrant at 52nd Ave.	$3,306,000	2012
	Total	$5,806,000.00	
Phase 4	Interchange		
4.1	Construct the Interchange	$17,500,000	2012
	Total	$17,500,000.00	

REFERENCES

Highway Design Manual, 2003 English – Expressway Design Standards
OAR 734 Division 51 Rules, Access Control
ODOT Bridge Log, 2004
Oregon Highway Plan, 1999
Polk County – Project 22 (http://www.polkproject22.com)
Polk County Transportation Plan

APPENDIX A – OPTIONS & ESTIMATES

Refer to Options Map at the end of this Appendix for location of all options described herein.

SUMMARY

Option	Construction	Right-of-Way	Environmental	Engineering	Total
NE-1a	$100,000	$0	$0	$40,000	$140,000.00
NE-1b	$550,000	$85,000	$100,000	$220,000	$955,000.00
NE-2a	$935,000	$201,000	$200,000	$374,000	$1,710,000.00
NE-2b	$835,000	$105,000	$200,000	$334,000	$1,474,000.00
NE-3	$1,500,000	$1,266,000	$300,000	$600,000	$3,666,000.00
SE-1a	$1,600,000	$228,000	$100,000	$640,000	$2,568,000.00
SE-1b	$1,706,000	$51,000	$300,000	$682,000	$2,739,000.00
SE-1c	$2,800,000	$51,000	$300,000	$1,120,000	$4,271,000.00
SE-2a	$1,145,000	$375,000	$200,000	$458,000	$2,178,000.00
SE-2b	$1,485,000	$51,000	$300,000	$594,000	$2,430,000.00
SW-1	$100,000	$0	$0	$40,000	$140,000.00
SW-2	$725,000	$16,000	$100,000	$290,000	$1,131,000.00
NW-1a	$100,000	$0	$0	$40,000	$140,000.00
NW-1b	$80,000	$0	$0	$32,000	$112,000.00
NW-2	$1,200,000	$25,000	$200,000	$480,000	$1,905,000.00
NW-3a	$800,000	$4,000	$200,000	$320,000	$1,324,000.00
NW-3b	$1,250,000	$13,000	$200,000	$500,000	$1,963,000.00
NW-4	$1,090,000	$71,000	$200,000	$436,000	$1,797,000.00
NW-5	$2,100,000	$45,000	$200,000	$840,000	$3,185,000.00

NORTHEAST QUADRANT

Option NE-1a: 52nd/53rd/Aster Rd w/ Overlay
This option maintains the existing 52nd/53rd/Aster Road system, including the access of 52nd Ave to Highway 22. (The access at 52nd Ave will eventually be closed with the construction of the interchange at the intersection of Highway 51/55th Ave and Highway 22.) An AC overlay of the existing road surface is recommended to be constructed to provide a smooth riding surface. Existing right-of-way is 40' wide on 52nd and 53rd, and 60' wide on Aster. Additional right of way along 52nd and 53rd will need to be purchased to provide for 60' of width. This option is the same as one of ODOT's options shown in their long-range plan.

Since it is existing alignment and no improvements outside the existing edges of pavement are proposed it is anticipated that this option will not require any additional environmental compliance efforts.

Advantages:

- Uses the existing road system.
- Maintains the existing access of 52nd Ave to Highway 22 to avoid more congestion at 55th Ave. To be closed when interchange is constructed.

Disadvantages:

- Connection to 55th Ave, and ultimately Highway 22, is a longer route than typical interchange frontage/backage road.
- Narrow road; portions gravel.

Estimate:		
Construction	$100,000	overlay existing surface
Right-of-Way	$0	
Environmental	$0	
Engineering	$40,000	40% of Construction
Total	$140,000.00	

Option NE-1b: 52nd/53rd/Aster Rd w/ Widening to 52nd Ave & 53rd Ave

This option is the existing 52nd/53rd/Aster Road system with the following improvements provided: widen 52nd Ave and 53rd Ave to 2-12' lanes w/ 4' shoulders, and overlay 52nd Ave, 53rd Ave, and Aster Road. Access from 52nd Ave to Highway 22 will be maintained. (This access will eventually be closed with the construction of the interchange at the intersection of Highway 51/55th Ave and Highway 22.) Existing right-of-way is 40' wide on 52nd and 53rd, and 60' wide on Aster. Additional right of way along 52nd and 53rd will need to be purchased to provide for 60' of width.

52nd Ave crosses McNary Creek. There are possible stream and wetland impacts. An environmental assessment will likely be required for the existing roadway ditches, seeps and tributary to McNary Creek along approximately 100 foot corridor on both sides of road.

Advantages:

- Uses the existing road system.
- Improves the existing road system.
- Maintains the existing access of 52nd Ave to Highway 22 to avoid more congestion at 55th Ave. To be closed when interchange is constructed.

Disadvantages:

- Connection to 55th Ave, and ultimately Highway 22, is a longer route than typical interchange frontage/backage road.

Estimate:		
Construction	$550,000	Widen roadway, close access, overlay existing surface
Right-of-Way	$85,000	59,100 sf or 1.36 ac – AR-5 zoned
Environmental	$100,000	
Engineering	$220,000	40% of Construction
Total	$955,000.00	

Option NE-2a: 52nd Ave to 50th Ave backage road

This option will maintain the existing access at 50th Ave and construct a backage road from 50th Ave to 52nd Ave. The backage road would run parallel to and along the backside of several properties abutting Highway 22. All other accesses between 50th Ave and 52nd Ave will be closed and reconnected to the backage road. The backage road will require the purchase of new right-of-way 60' wide. This option would build a portion of the backage road option shown in ODOT's long-range plan.

This option will require an environmental assessment of roadside and other ditches, and area approximately 100 feet on both sides of corridor.

Advantages:

- Closes private accesses to Highway 22.
- Closes accesses to Highway 22 between 50th Ave and 52nd Ave.
- Will allow 50th Ave to remain open while still providing local connectivity of the county road system.

Disadvantages:

- Will use the driveway into the steel building business; may create proximity impacts to business.
- Connecting businesses along Highway 22 to backage road may require steep grades.

Estimate:		
Construction	$935,000	New backage road
Right-of-Way	$201,000	1040': 62,400 sf or 1.43 ac – EO-1 zoned 880': 52,800 sf or 1.21 ac – AR-5 zoned
Environmental	$200,000	
Engineering	$374,000	40% of Construction
Total	$1,710,000.00	

Option NE-2b: 52nd Ave to 50th Ave frontage road

This option constructs a frontage road from 50th Ave to 52nd Ave. It will close all accesses between 50th Ave and 52nd Ave, including the closure of 50th Ave and 52nd Ave to Highway 22. The frontage road will use portions of existing ODOT right-of-way, however, it will still require the purchase of 30'+ of new right-of-way. Right-of-way will

be 60' wide. This option would build a portion of the frontage road shown in ODOT's long-range plan.

This option will require an environmental assessment of roadside and other ditches, and area approximately 100 feet on both sides of corridor.

Advantages:

- Closes private accesses to Highway 22.
- Abuts the existing Highway 22, having the least impact on existing businesses.

Disadvantages:

- Will not support Highway 22 future 6-lane configuration and pedestrian facilities.
- Requires closure of 50th Ave to Highway 22.

Estimate:		
Construction	$835,000	New frontage road
Right-of-Way	$105,000	1040': 62,400 sf or 1.43 ac – FO-I zoned 880': 52,800 sf or 1.21 ac – AR-5 zoned
Environmental	$200,000	
Engineering	$334,000	40% of Construction
Total	$1,474,000.00	

Option NE-3: 52nd Ave to 55th Ave New Alignment

This option constructs a new alignment from 52nd Ave to 55th Ave, bypassing the existing 52nd/53rd/Aster Road system. This alignment will require the purchase of new right-of-way 60 wide. This option would build a portion of the backage road shown in ODOT's long-range plan.

This option will require an environmental assessment at a 200 foot width on both sides of new the alignment.

Advantages:

- Creates closer connection to the Highway 51 interchange by approximately 500'.

Disadvantages:

- Requires new right-of-way purchases; dividing properties.
- Crosses through environmentally sensitive area.
- All new construction in close proximity to the existing 52nd/53rd/Aster Road system.
- Connection of existing Aster Road is only approximately 500' from proposed connection of this new alignment.
- A connection to 53rd Ave from the new alignment may be required.

Estimate:		
Construction	$1,500,000	New alignment
Right-of-Way	$1,266,000	2450'; 177,000 sf or 4.06 ac – AR-5 zoned
Environmental	$300,000	
Engineering	$600,000	40% of Construction
Total	$3,666,000.00	

SOUTHEAST QUADRANT

Option SE-1a: RV Park to Chevron Station (south alignment)
This option will maintain the existing access to the Eola Bend RV Park and construct a backage road from the RV Park's access point southwesterly along the old railroad alignment to a point south of the Chevron Station. At this point the backage road will turn north and access the Chevron Station. All other accesses to Highway 22 from the RV Park entrance to the Chevron Station will be closed. This option could be continued to Highway 51 using either Option SE-1b or SE-1c. This option's alignment is located in or near the old railroad alignment just north of Rickreall Creek. Providing two access points on this backage road is favorable to allow free circulation of traffic in and around this quadrant of the interchange and not overload the RV park access. Only a portion of the railroad right-of-way is still owned by the railroad. Other current owners include the RV park and the pipe company. The backage road will require the purchase of right-of-way 60' wide. This option would build a portion of the backage road shown in ODOT's long-range plan.

This option will require an environmental assessment be conducted along the backage road. This alignment follows Rickreall Creek. The environmental assessment will likely include a wetland delineation to determine jurisdictional boundaries, and impacts to wetlands, riparian areas, ditches, soil conditions and mitigation site planning. A DSL/Corps permit will likely be required and possibly ESA consultation depending upon listings in Rickreall Creek (and possibly Hayden Slough).

Advantages:
- Closes private accesses to Highway 22.
- Alignment runs in or near the footprint of the old railroad, and does not split the properties that currently abut Highway 22.
- Maintains larger lot sizes; possibly more favorable for future businesses that may locate here in the future.

Disadvantages:
- Backage road diverges away from highway and existing businesses.

Estimate:		
Construction	$1,600,000	Closes accesses; New backage road
Right-of-Way	$228,000	3880'; 232,800 sf or 5.34 ac – FF zoned 1820': 109,200 sf or 2.51 ac – EO-IC zoned
Environmental	$100,000	
Engineering	$640,000	40% of Construction
Total	$2,568,000.00	

Option SE-1b: Chevron Station to Hwy 51 (south connection) (south alignment)
This option will continue Option SE-1a from a point south of the Chevron Station to a new access point opposite the intersection of South Oak Grove Road on Highway 51. Providing two access points on this backage road is favorable to allow free circulation of traffic in and around this quadrant of the interchange and not overload the RV Park access. This alignment will require the purchase of new right-of-way 60' wide. This design option was not considered in ODOT's long-range plan.

This option will require an environmental assessment be conducted along the backage road. This alignment follows Rickreall Creek and crosses McNary Creek near Highway 51. The environmental assessment will likely include a wetland delineation to determine jurisdictional boundaries, and impacts to wetlands, riparian areas, ditches, soil conditions and mitigation site planning. A DSL/Corps permit will likely be required and possibly ESA consultation depending upon listings in Rickreall and McNary Creeks (and possibly Hayden Slough).

Advantages:
- Does not cross Rickreall Creek.
- Intersects Highway 51 opposite current intersection of S. Oak Grove Road with Highway 51.

Disadvantages:
- Crosses McNary Creek; will require culvert or bridge.
- Crosses low-land area requiring large embankment fill.

Estimate:		
Construction	$1,706,000	New alignment
Right-of-Way	$51,000	2880': 172,800 sf or 3.97 ac – FF zoned
Environmental	$300,000	
Engineering	$682,000	40% of Construction
Total	$2,739,000.00	

Option SE-1c: Chevron Station to Hwy 51 (south connection) (south alignment)
This option will continue Option SE-1a from a point south of the Chevron Station to McNary Street, crossing Rickreall Creek. The existing intersection of McNary Street and

Highway 51 will be re-constructed to improve the intersection geometry. Providing two access points on this backage road is favorable to allow free circulation of traffic in and around this quadrant of the interchange and not overload the RV Park access. This alignment will require the purchase of new right-of-way 60' wide. This option would build a portion of the backage road shown in ODOT's long-range plan.

This option will require an environmental assessment be conducted along the backage road. This alignment follows Rickreall Creek and crosses Rickreall Creek near McNary Street. The environmental assessment will likely include a wetland delineation to determine jurisdictional boundaries, and impacts to wetlands, riparian areas, ditches, soil conditions and mitigation site planning. A DSL/Corps permit will likely be required and possibly ESA consultation depending upon listings in Rickreall and McNary Creeks (and possibly Hayden Slough).

Advantages:

- Avoids constructing roadway embankment in low-land.
- Uses existing McNary Street to connect to Highway 51

Disadvantages:

- Crosses McNary and Rickreall Creeks.

Estimate:		
Construction	$2,800,000	New alignment
Right-of-Way	$51,000	2880': 172,800 sf or 3.97 ac – FF zoned
Environmental	$300,000	
Engineering	$1,120,000	40% of Construction
Total	$4,271,000.00	

Option SE-2a. RV Park to Chevron Station (north alignment)

This option will maintain the existing access to the Eola Bend RV Park and construct a backage road from this access point to the west to the back of the existing Chevron Station. All other accesses to Highway 22 from the RV Park entrance to the Chevron Station will be closed. A cul-de-sac could be constructed at this point, or it can be continued to Highway 51 using Option SE-2b. This option's alignment is located just to the back of the businesses along this portion of the highway. Providing two access points on this backage road is favorable to allow free circulation of traffic in and around this quadrant of the interchange and not overload the RV Park access. However, if due to funding and schedule shortages, stopping the backage road at the Chevron Station would still provide local access and alleviate access problems along Highway 22. The backage road will require the purchase of new right-of-way 60' wide. This design option was not considered in ODOT's long-range plan.

This option will require an environmental assessment be conducted along the backage road. This alignment follows Highway 22. The environmental assessment will likely include a wetland delineation to determine jurisdictional boundaries, and impacts to

wetlands, riparian areas, ditches, soil conditions and mitigation site planning. A DSL/Corps permit will likely be required and possibly ESA consultation depending upon listings in Rickreall (and possibly Hayden Slough).

Advantages:

- Closes private accesses to Highway 22.
- Backage road is located parallel to Highway 22, and just behind existing businesses.

Disadvantages:

- Divides existing properties.
- Creates small parcels along highway.
- Parcels become unusable when Highway 22 expands to 6 lanes.

Estimate:		
Construction	$1,145,000	Closes accesses; New backage road
Right-of-Way	$375,000	1800': 108,000 sf or 2.48 ac – EO-IC zoned 1320': 79,200 sf or 1.82 ac – EO-CO zoned
Environmental	$200,000	
Engineering	$458,000	40% of Construction
Total	$2,178,000.00	

Option SE-2b: Chevron Station to Hwy 51 (south connection) (north alignment)
This option will continue Option SE-2a from the back of the Chevron Station to a new access point opposite the intersection of South Oak Grove Road on Highway 51. Providing two access points on this backage road is favorable to allow free circulation of traffic in and around this quadrant of the interchange and not overload the RV Park access. This alignment will require the purchase of new right-of-way 60' wide. This design option was not considered in ODOT's long-range plan.

This option will require an environmental assessment be conducted along the backage road. This alignment crosses McNary Creek near Highway 51. The environmental assessment will likely include a wetland delineation to determine jurisdictional boundaries, and impacts to wetlands, riparian areas, ditches, soil conditions and mitigation site planning. A DSL/Corps permit will likely be required and possibly ESA consultation depending upon listings in Rickreall and McNary Creeks (and possibly Hayden Slough).

Advantages:

- Does not cross Rickreall Creek.
- Intersects Highway 51 opposite current intersection of S. Oak Grove Road with Highway 51.

Disadvantages:

- Crosses McNary Creek; will require culvert or bridge.
- Crosses low-land area requiring large embankment fill.

Estimate:		
Construction	$1,485,000	New alignment
Right-of-Way	$51,000	2880': 172,800 sf or 3.97 ac – FF zoned
Environmental	$300,000	
Engineering	$594,000	40% of Construction
Total	$2,430,000.00	

SOUTHWEST QUADRANT

Option SW-1: South Oak Grove Rd

This option closes the access of South Oak Grove Road to Highway 22, and maintains the existing road for local use to Highway 51. An AC overlay of the existing road surface will be constructed to provide a smooth riding surface. Existing right-of-way is 60' wide, and will not require any additional right-of-way for use with the interchange design. This option is the same as ODOT's long-range plan.

Since it is existing alignment and no improvements outside the existing edges of pavement are proposed it is anticipated that this option will not require any additional environmental compliance costs.

Advantages:

- Uses existing local road as access to the southwest quadrant.

Disadvantages:

- (no major disadvantages)

Estimate:		
Construction	$100,000	Close access; overlay existing surface
Right-of-Way	$0	
Environmental	$0	
Engineering	$40,000	40% of Construction
Total	$140,000.00	

Option SW-2: South Oak Grove frontage road

This option constructs a new frontage road approximately 2900' in length along the south side of Highway 22. This frontage road will sever all the current driveways with access onto Highway 22 and connect them to South Oak Grove Road. This option will use portions of existing ODOT right-of-way, however, it will require the purchase of some new right-of-way. This option would build a portion of the frontage road shown in ODOT's long-range plan.

This option will require an environmental assessment for wetlands, ponds, and streams along the existing roadway, 200 feet width on each side and adjacent property.

Advantages:

- Closes private accesses to Highway 22.

Disadvantages:

- (no major disadvantages)

Estimate:		
Construction	$725,000	New frontage road
Right-of-Way	$16,000	20,325 sf or 0.47 ac – AR-5 zoned 7,650 sf or 0.18 ac – FF zoned
Environmental	$100,000	
Engineering	$290,000	40% of Construction
Total	$1,131,000.00	

NORTHWEST QUADRANT

Option NW-1a: Oak Grove Rd. (Brunk Road)

This option closes the access of Oak Grove Road to Highway 22, and maintains the use of approximately 2000' of the existing road to the intersection of Option NW-2 for local access. This option will also close the access from Highway 22 to the Brunk House and construct a new access from Oak Grove Road. (Brunk House is a historic farm museum.) Existing right-of-way is 60' wide, and will not require any additional right of way for use with the interchange design. This option is the same as ODOT's long-range plan.

Since it is existing alignment and no improvements outside the existing edges of pavement are proposed it is anticipated that this option will not require any additional environmental compliance costs.

Advantages:

- Uses existing local road as access to the Brunk House, the cemetery, and possibly the golf course.
- Closes two accesses to Highway 22.

Disadvantages:

- (no major disadvantages)

Estimate:		
Construction	$100,000	Close accesses
Right-of-Way	$0	
Environmental	$0	
Engineering	$40,000	40% of Construction
Total	$140,000.00	

Option NW-1b: Oak Grove Rd. (Brunk Road)
This option preserves and maintains the use of an additional 2000' +/- of the existing road directly to the north of Option NW-1a and to the intersection of Option NW-4. Existing right-of-way is 60' wide, and will not require any additional right of way for use with the interchange design. This option is the same as ODOT's long-range plan.

Since it is existing alignment and no improvements outside the existing edges of pavement are proposed it is anticipated that this option will not require any additional environmental compliance costs.

Advantages:
- Uses the existing road for local access.

Disadvantages:
- (no major disadvantages)

Estimate:		
Construction	$80,000	
Right-of-Way	$0	
Environmental	$0	
Engineering	$32,000	40% of Construction
Total	$112,000.00	

Option NW-2: Oak Grove to 55th Ave (south alignment)
This option constructs a new backage road approximately 2700' in length from Oak Grove Road to 55th Ave. The backage road will require the purchase of new right-of-way 60' wide. This option would build the backage road shown in ODOT's long-range plan.

This option will require an environmental field check assessment for wetlands and other waters. DSL/CORPS permit likely for wetland impacts. No creek crossing.

Advantages:
- Alignment is located between the filbert orchard and the vineyard; minimizing impacts to both land parcels and businesses.
- Connects to 55th Ave just beyond the access limits of the interchange.

Disadvantages:
- Alignment contains reversing curves.
- Location does not align well with other proposed backage roads.

Estimate:		
Construction	$1,200,000	New backage road
Right-of-Way	$25,000	162,000 sf or 3.72 ac – EFU zoned
Environmental	$200,000	
Engineering	$480,000	40% of Construction
Total	$1,905,000.00	

Option NW-3a: Oak Grove Golf Course frontage road

This option constructs a new frontage road along the north side of, and at the same grade as, Highway 22 approximately 5350' in length from Oak Grove Road to the golf course. It will use portions of the existing ODOT right-of-way; however, it will require the purchase of some new right-of-way. The right-of-way to be 60' wide. This design option was not considered in ODOT's long-range plan.

This option will require an environmental assessment of cemetery property, pasture and ditches along the proposed roadway corridor, 100 feet width on each side of alignment. This option crosses McNary Creek at intersection of 55th.

Advantages:

- Abuts the highway alignment and requires the least amount of right-of-way for construction of a new access to the golf course.
- If necessary, the frontage road can be relocated when the interchange is constructed and the frontage road roadbed used for the Highway 22 6-lane configuration.

Disadvantages:

- Abuts the highway alignment and will be in close proximity to the new interchange ramp.
- May not support Highway 22 future 6-lane configuration without being relocated.

Estimate:		
Construction	$800,000	New frontage road
Right-of-Way	$4,000	22,350 sf or 0.51 ac – PC zoned
Environmental	$200,000	
Engineering	$320,000	40% of Construction
Total	$1,324,000.00	

Option NW-3b: Oak Grove Golf Course backage road (south alignment)

This option constructs a backage road from Oak Grove Road to the golf course approximately 2030' in length on the property adjacent to and along the backside of the cemetery. New right-of-way 60' in width will be required to be purchased. This option is the same as ODOT's long-term plan.

This option will require an environmental assessment, 100 feet width, both sides of existing roadway for impacts to cemetery property, ditches and pond area.

Advantages:

- Located away from the highway and the future ramp alignment.

Disadvantages:

- Requires relocation of the golf course entrance.
- Requires right-of-way purchase from either the undeveloped cemetery grounds (as shown) or from the golf course itself (not shown).

Estimate:		
Construction	$1,250,000	New backage road
Right-of-Way	$13,000	121,800 sf or 2.80 ac – EFU zoned
Environmental	$200,000	
Engineering	$500,000	40% of Construction
Total	$1,963,000.00	

Option NW-4: Oak Grove to 55th Ave (north alignment)

This option constructs a new backage road approximately 2400' in length from Oak Grove Road to 55th Ave, intersecting 55th Ave at Aster Road. The backage road will require the purchase of new right-of-way 60' wide. This design option was not considered in ODOT's long-range plan.

This option will require an environmental field check assessment for wetlands and other waters. DSL/CORPS permit likely for wetland impacts. No creek crossing.

Advantages:

- Location provides more direct route to 55th Ave for travelers out Oak Grove Road.
- Connects to 55th Ave at existing intersection of Aster Road and 55th Ave.

Disadvantages:

- Increased length of improvement to existing Oak Grove Road.
- Significant impact to vineyard.
- Divides land parcel.

Estimate:		
Construction	$1,090,000	New alignment
Right-of-Way	$71,000	144,000 sf or 3.30 ac – EFU zoned
Environmental	$200,000	
Engineering	$436,000	40% of Construction
Total	$1,797,000.00	

Option NW-5: Oak Grove Rd. Golf Course backage road (north alignment)
This option constructs a backage road from Oak Grove Road to the backside of the golf course property approximately 1700' in length. New right-of-way 60' in width will be required to be purchased. This design option was not considered in ODOT's long-term plan.

This option will require an environmental assessment, 100 feet width, both sides of existing roadway for impacts to cemetery property, ditches and pond area.

Advantages:

- Provides access to back of golf course, rather than in the middle.
- Intersects Oak Grove Road at same point as Option NW-4.
- Does not impact cemetery.

Disadvantages:

- Accesses golf course at back of parcel; opposite end as existing club house.

Estimate:		
Construction	$2,100,000	New alignment
Right-of-Way	$45,000	5000': 300,000 sf or 6.89 ac – EFU zoned
Environmental	$200,000	
Engineering	$840,000	40% of Construction
Total	$3,185,000.00	

APPENDIX B – DESIGN STANDARDS

Per ODOT Highway Design Manual, functional classification of the:
- Willamina-Salem Hwy No. 30 is:

MP 0.00 to MP 23.61	02-Rural Principal Arterial – Other
MP 23.61 to MP 26.14	12-Urban Principal Arterial – Other Fwy or Exp

- Independence Hwy No. 193 is:

MP 0.00 to MP 4.88	06-Rural Minor Arerial
MP 4.88 to MP 6.34	14-Urban Principal Arterial – Other

Per ODOT Highway Design Manual, access spacing standards per Oregon Highway Plan, Appendix C:

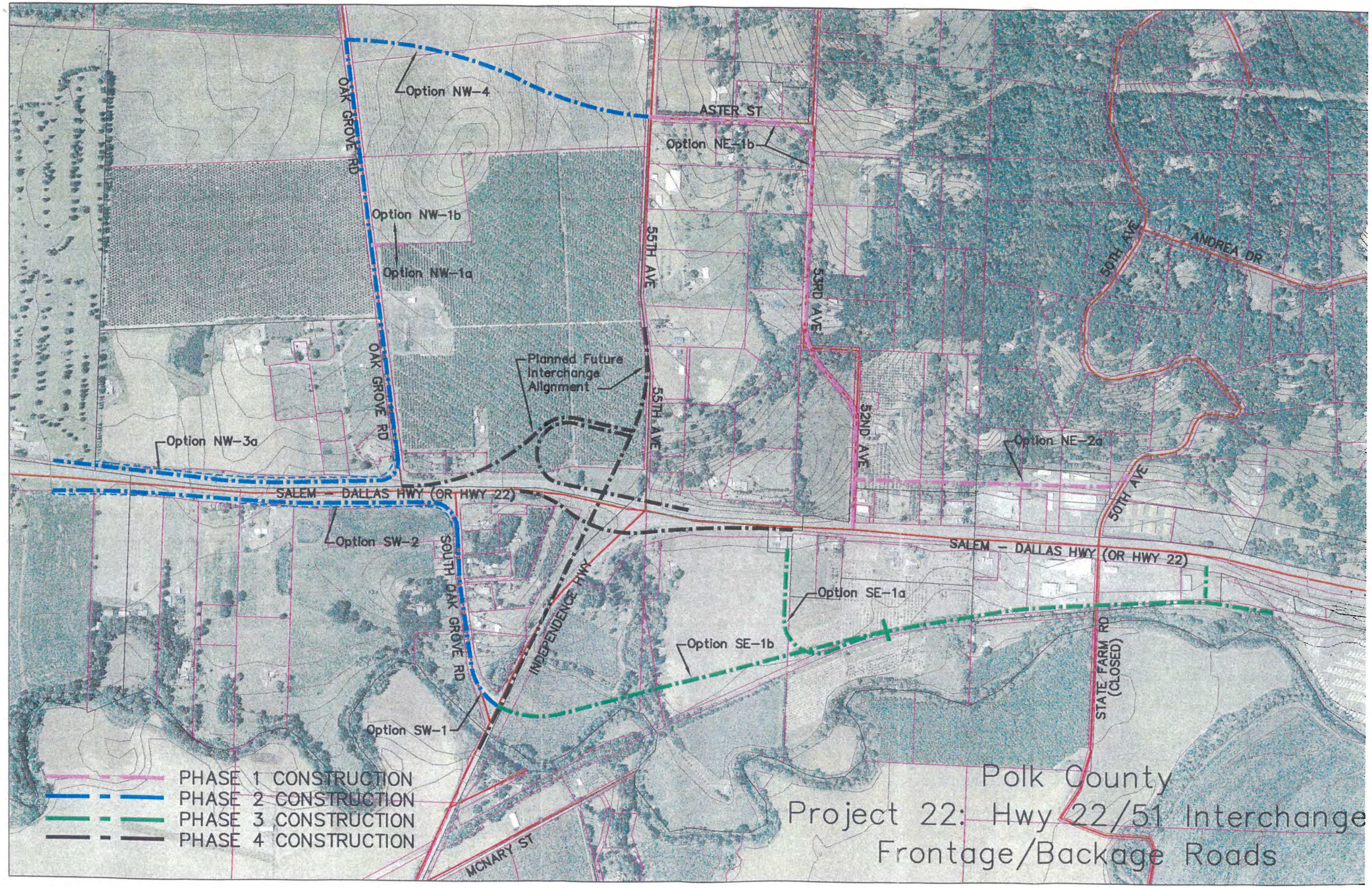
Interchange Spacing:		
Rural	3 miles	
Urban	1.9 miles	
Statewide Highways:		
Rural Expressway	5280'	Posted Speed >/= 55 mph
Urban Expressway	2640'	Posted Speed >/= 55 mph
Non-Freeway Interchange w/ Two-Lane Crossroads		
Rural Expressway	1 mile	Measured along Mainline
	1320'	Measured along Crossroad
Urban Expressway	2640'	Measured along Mainline
	1320'	Measured along Crossroad

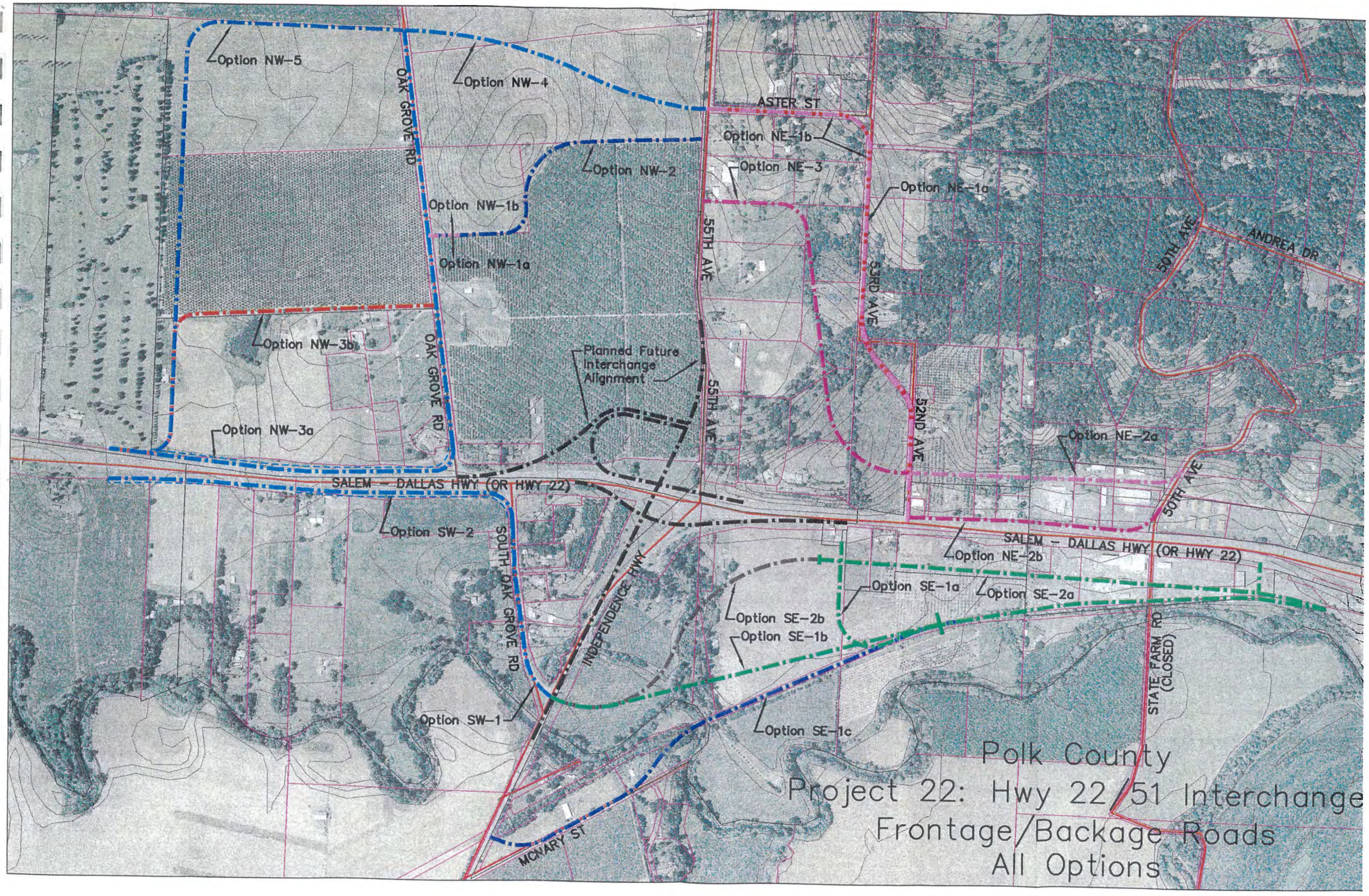
Design Speed	60-70 mph
Travel Lanes	12'
Right Turn Lane	12' + shoulder
Left Turn Lane	24' (4' shy – 4' separator – 12' lane – 4' shy)
Right Side Shoulder	8'
Median:	
Striped	10'
Raised Curb	20' travel to travel lane
Concrete Barrier	10' for 4 lanes 18' for 6 lanes
Max Superelevation	8.5% to 9.5%
Max Degree of Curve	3°15' to 15°00'
Max Grade	5%
Curbside Sidewalk	No
Separated Sidewalk	6'
On-Street Parking	No
Vertical Clearance	17'

Typical Sections:	
State Highways:	
Hwy 22 Expressway (ODOT)	
8' shld | 12' ln | 12' ln | 12' ln | 18' med w/ conc barrier | 12' ln | 12' ln | 12' ln | 8' shld	
Hwy 51 (ODOT)	
10' shld | 12' lane |12' lane |10' shld	
County Frontage Roads:	
Urban Major Collector (68' row; min pavement width = 34')	
min 5' shld | 12' lane | 12' lane | min 5' shld	
Rural Major Collector (60' row; min pavement width = 24')	
4'-6' gravel shld | min 12' lane | min 12' lane | 4'-6' gravel shld	
Frontage Road along Highway 22:	(Total Roadway Width = 148')
Curb | 8' shld | 12' ln | 12' ln | 12' ln | 18' md | 12' ln | 12' ln | 12' ln | 8' shld | 2' E | 2' conc barrier | 8' bike/shld | 12' ln | 12' ln | 6' shld | curb/barrier	

APPENDIX C - ACRONYMS

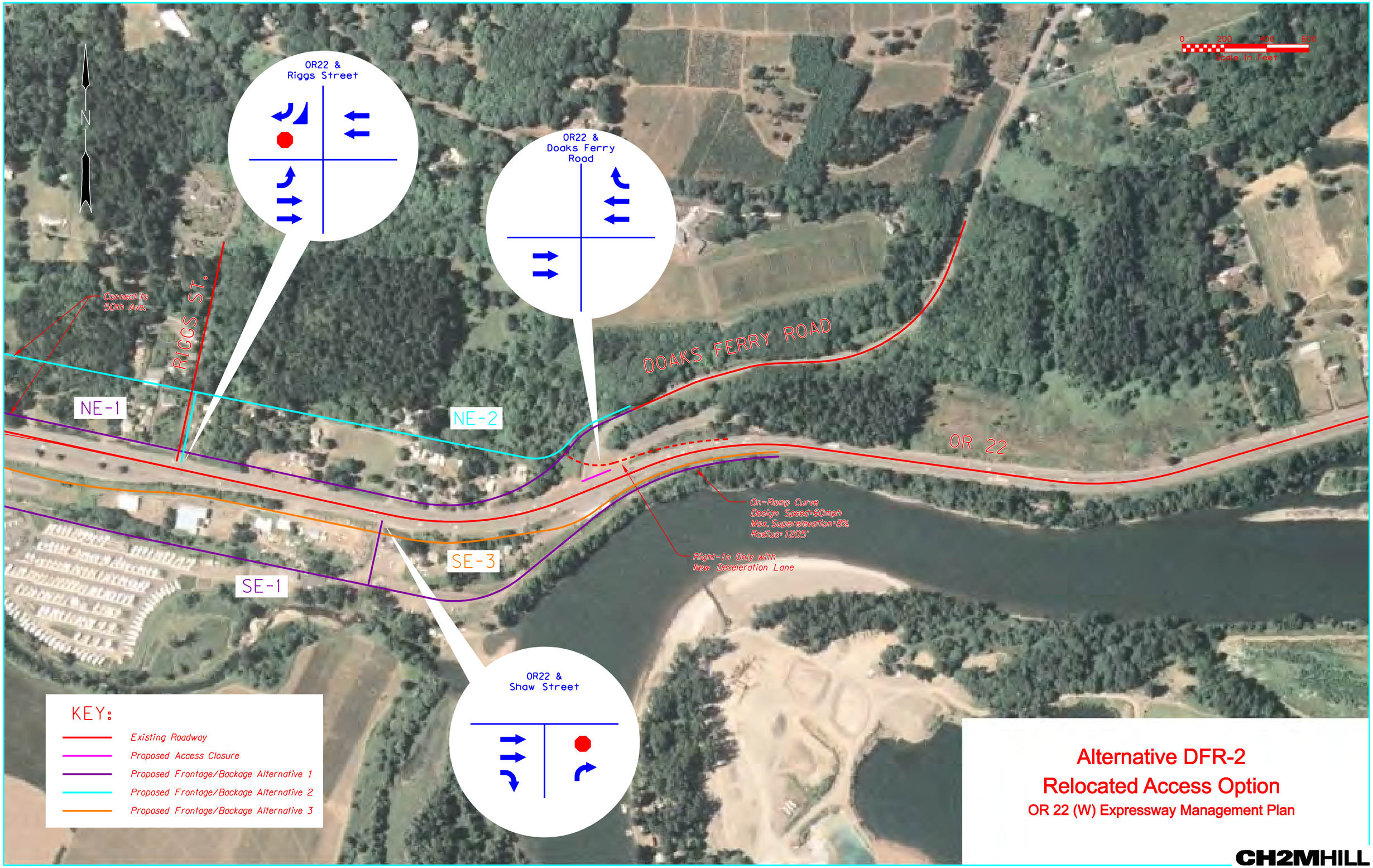
ac	Acres
AC	Asphaltic Concrete
Ave	Avenue
COE	U.S. Army Corps of Engineers
conc	Concrete
Corps	U.S. Army Corps of Engineers
DSL	Oregon Division of State Lands
EA	Environmental Assessment
EIS	Environmental Impact Statement
ESA	Endangered Species Act
Hwy	Highway
ln	Lane
M	Million
med	Median
min	Minimum
MP	Mile Post or Mile Point
mph	Miles Per Hour
MPO	Metropolitan Planning Organization
MWACT	Mid-Willamette Valley Area Commission Transportation
MWVCOG	Mid-Willamette Valley Council of Governments
NE	Northeast
NEPA	National Environmental Policy Act
NW	Northwest
ODOT	Oregon Department of Transportation
OHP	Oregon Highway Plan
ORS	Oregon Revised Statutes
OTC	Oregon Transportation Commission
OTIA	Oregon Transportation Investment Act
Rd	Road
row	Right-of-Way
SE	Southeast
sf	Square Feet
shld	Shoulder
SHPO	State Historic Preservation Office
SKATS	Salem-Keizer Area Transportation Study
STIP	Statewide Transportation Improvement Program
SW	Southwest
TIP	Transportation Improvement Plan
UGB	Urban Growth Boundary
US	United States

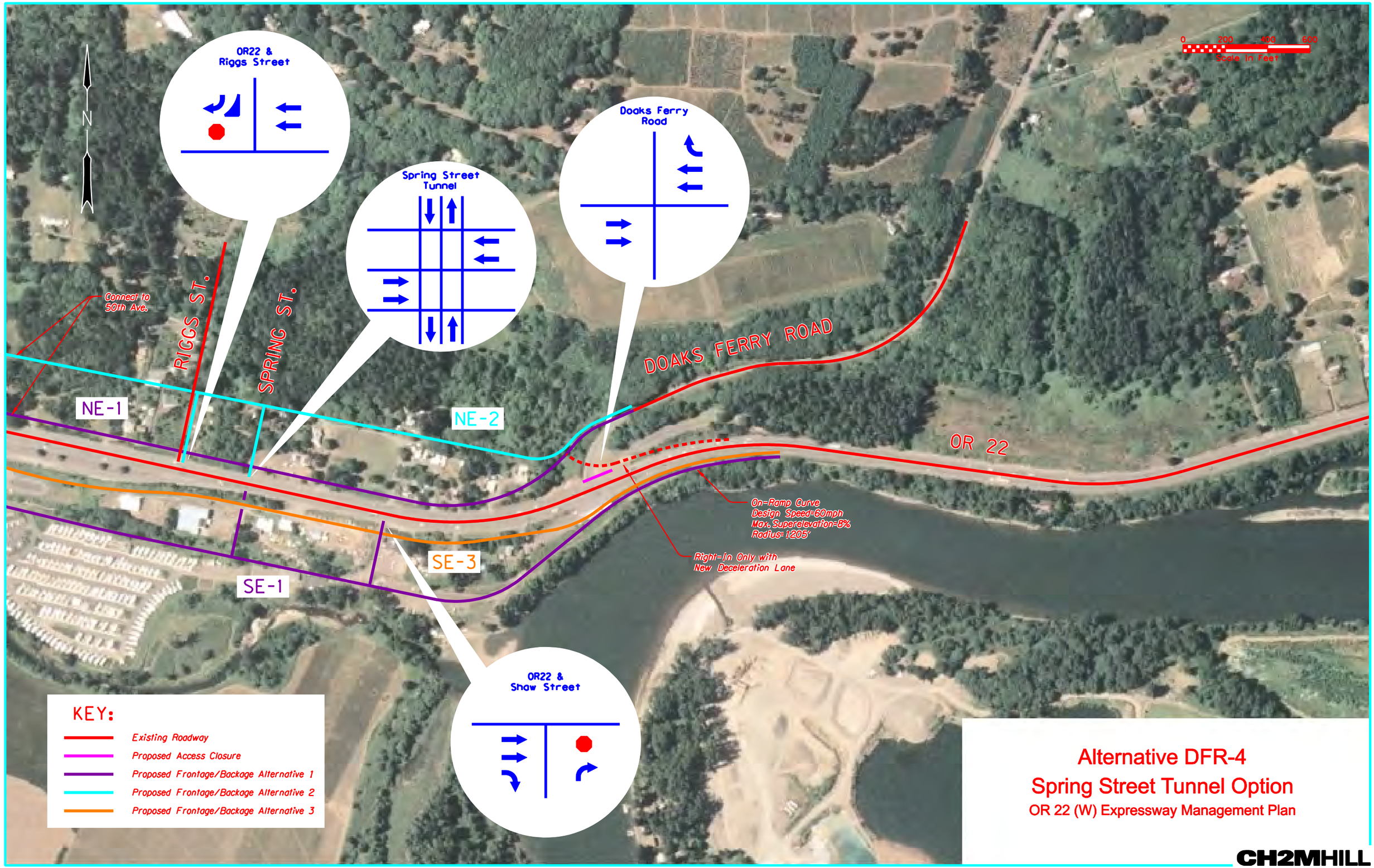

Option NW-4
ASTER ST
Option NE-1b
OAK GROVE RD
Option NW-1b
Option NW-1a
55TH AVE
53RD AVE
50TH AVE
ANDREA DR
Planned Future Interchange Alignment
52ND AVE
Option NE-2a
Option NW-3a
SALEM - DALLAS HWY (OR HWY 22)
Option SW-2
SOUTH OAK GROVE RD
INDEPENDENCE HWY
Option SE-1a
Option SE-1b
STATE FARM RD (CLOSED)
Option SW-1
MCNARY ST
PHASE 1 CONSTRUCTION
PHASE 2 CONSTRUCTION
PHASE 3 CONSTRUCTION
PHASE 4 CONSTRUCTION
Polk County
Project 22: Hwy 22/51 Interchange
Frontage/Backage Roads

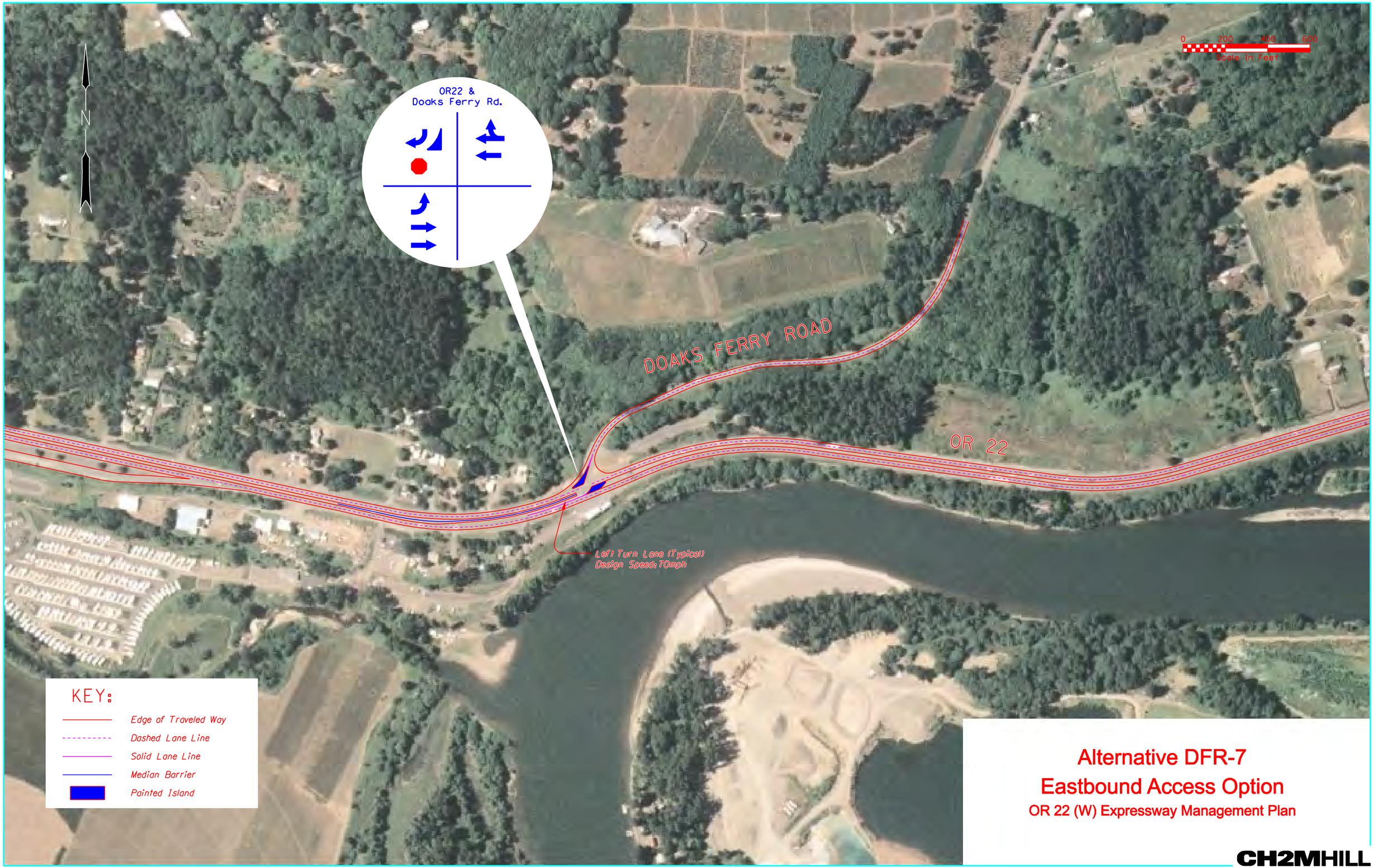

Option NW-5
Option NW-4
OAK GROVE RD
ASTER ST
Option NE-1b
Option NE-3
Option NW-2
Option NE-1a
Option NW-1b
55TH AVE
53RD AVE
50TH AVE
ANDREA DR
Option NW-1a
Option NW-3b
Planned Future
Interchange
Alignment
52ND AVE
Option NW-3a
Option NE-2a
SALEM - DALLAS HWY (OR HWY 22)
SOTH AVE
Option SW-2
SOUTH OAK GROVE RD
INDEPENDENCE HWY
Option NE-2b
Option SE-1a
Option SE-2a
Option SE-2b
Option SE-1b
STATE FARM RD
(CLOSED)
Option SW-1
Option SE-1c
MCNARY ST
Polk County
Project 22: Hwy 22/51 Interchange
Frontage/Backage Roads
All Options

APPENDIX H

Alternatives Diagrams


N
0 200 400 600
Scale In Feet
OR22 &
Riggs Street
OR22 &
Doaks Ferry
Road
OR22 &
Shaw Street
Connect to
50th Ave.
RIGGS ST.
DOAKS FERRY ROAD
OR 22
NE-1
NE-2
SE-1
SE-3
On-Ramp Curve
Design Speed=60mph
Max. Superelevation=8%
Radius=1205'
Right-In Only with
New Deceleration Lane
KEY:
Existing Roadway
Proposed Access Closure
Proposed Frontage/Backage Alternative 1
Proposed Frontage/Backage Alternative 2
Proposed Frontage/Backage Alternative 3
Alternative DFR-2
Relocated Access Option
OR 22 (W) Expressway Management Plan
CH2MHILL


OR22 &
Riggs Street
Spring Street
Tunnel
Doaks Ferry
Road
OR22 &
Shaw Street
N
0 200 400 600
Scale in Feet
Connect to
50th Ave.
RIGGS ST.
SPRING ST.
DOAKS FERRY ROAD
OR 22
NE-1
NE-2
SE-1
SE-3
On-Ramp Curve
Design Speed=60mph
Max. Superelevation=8%
Radius=1205'
Right-In Only with
New Deceleration Lane
KEY:
Existing Roadway
Proposed Access Closure
Proposed Frontage/Backage Alternative 1
Proposed Frontage/Backage Alternative 2
Proposed Frontage/Backage Alternative 3
Alternative DFR-4
Spring Street Tunnel Option
OR 22 (W) Expressway Management Plan
CH2MHILL



Alternative DFR-7
Eastbound Access Option
OR 22 (W) Expressway Management Plan

CH2MHILL

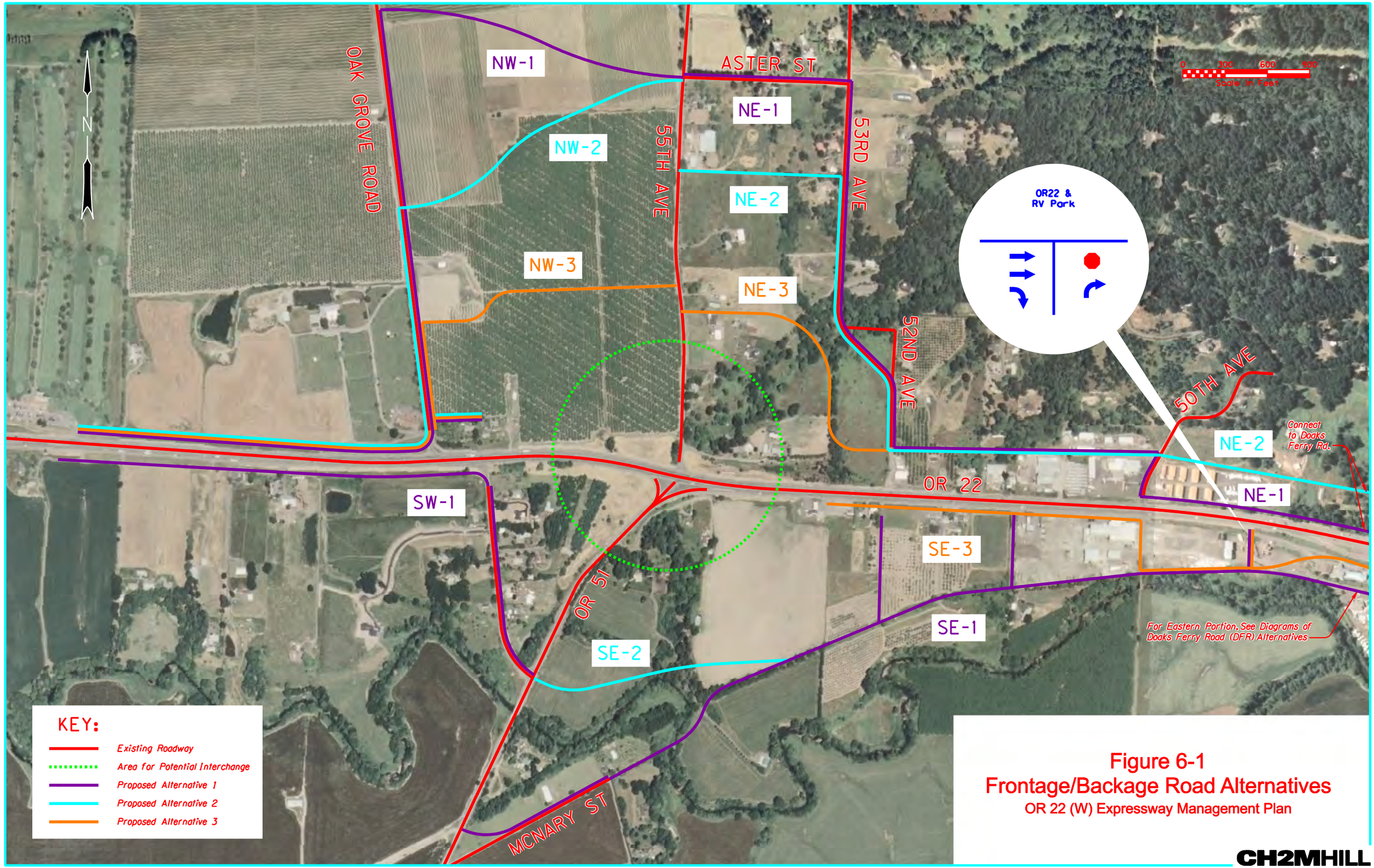
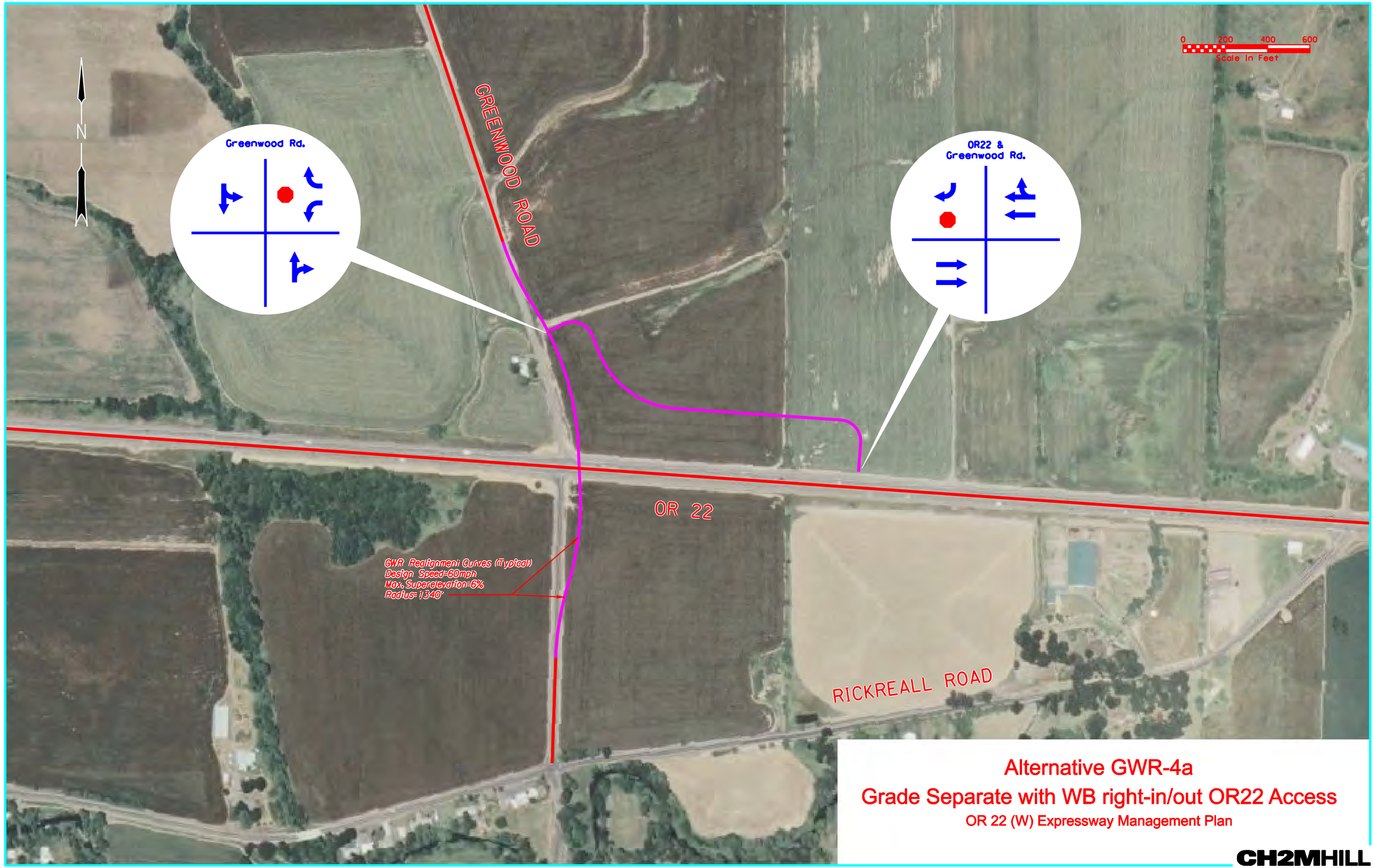


Figure 6-1
Frontage/Backage Road Alternatives
OR 22 (W) Expressway Management Plan

CH2MHILL

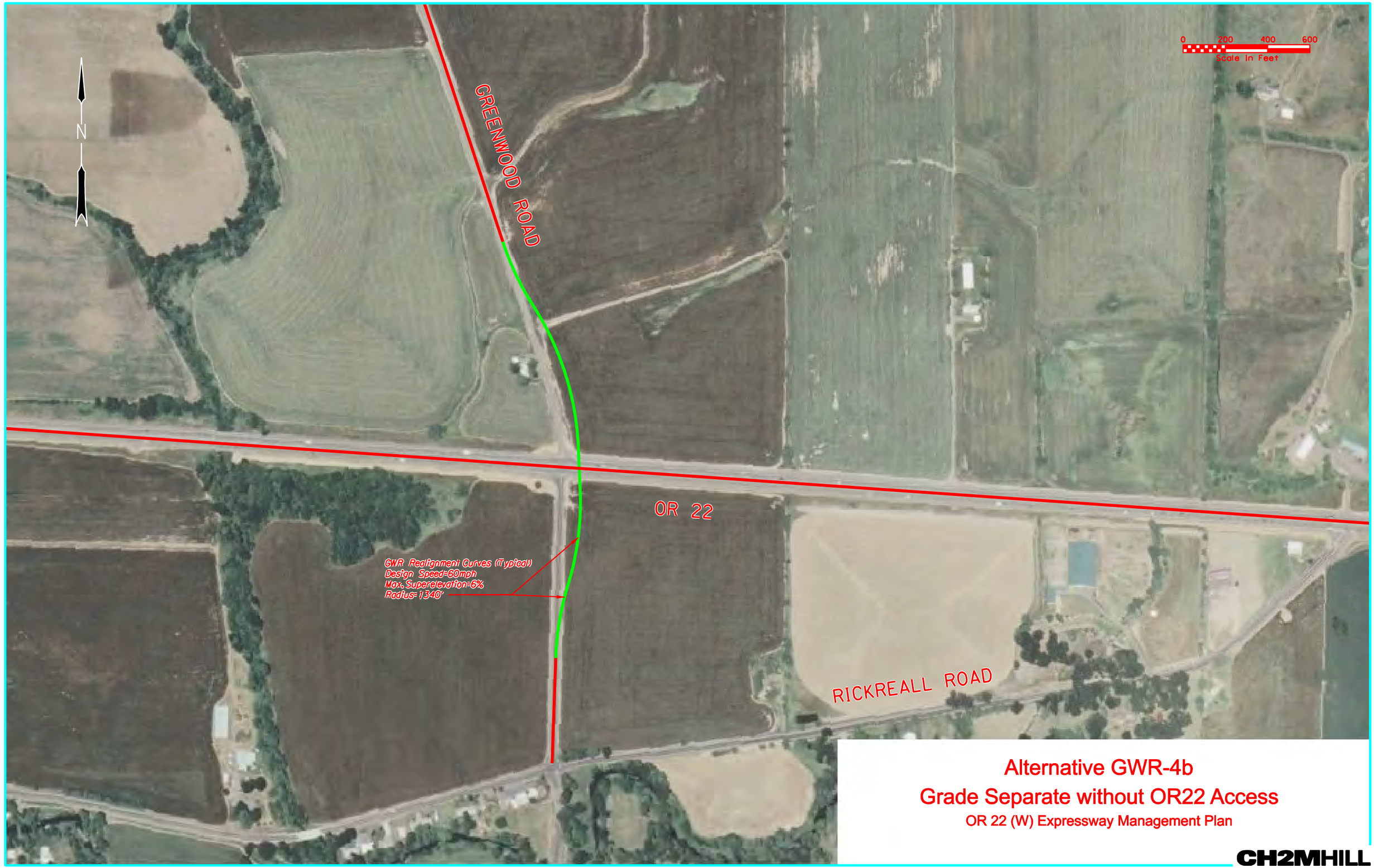


Alternative GWR-4a

Grade Separate with WB right-in/out OR22 Access

OR 22 (W) Expressway Management Plan

CH2MHILL

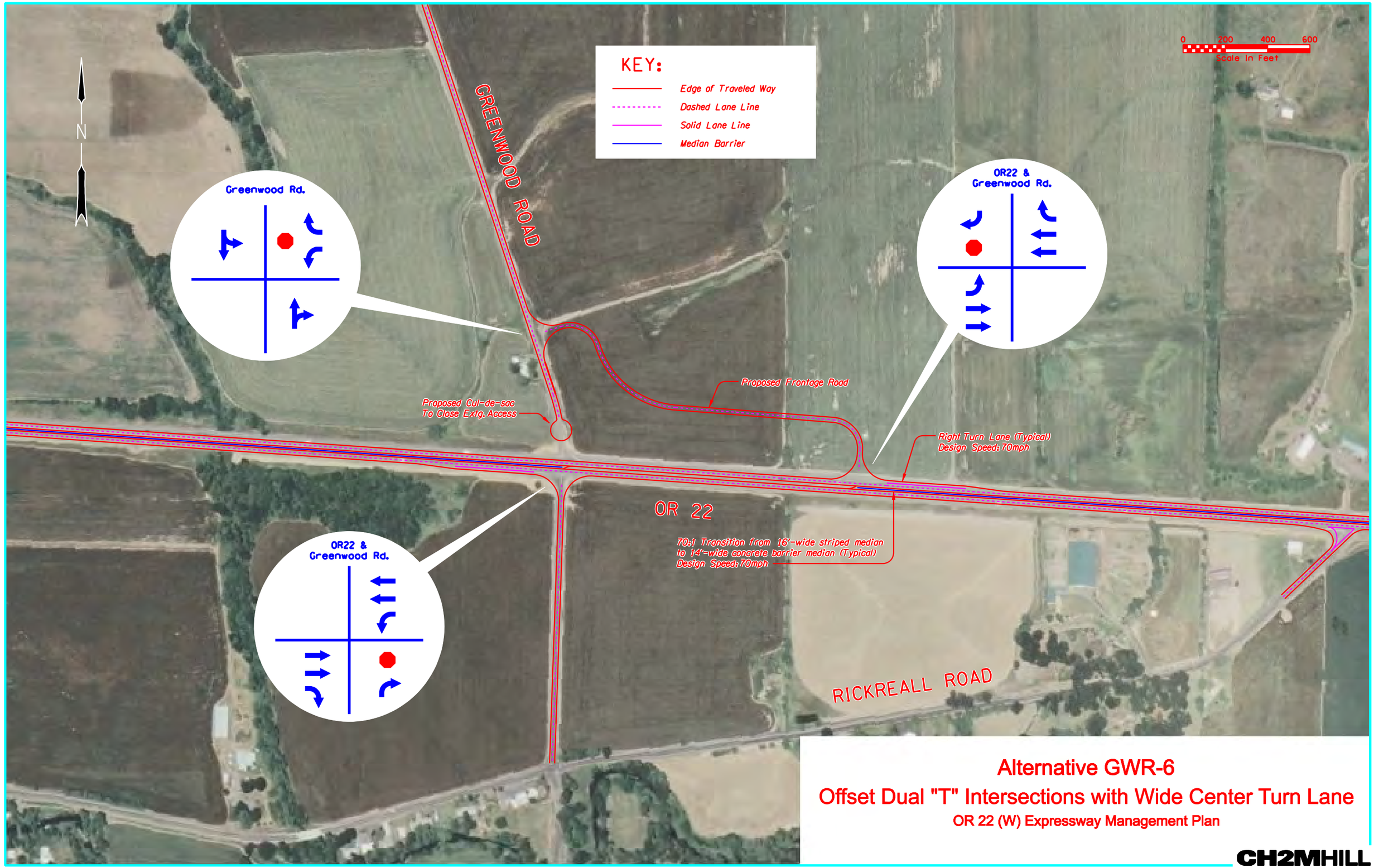


Alternative GWR-4b

Grade Separate without OR22 Access

OR 22 (W) Expressway Management Plan

CH2MHILL

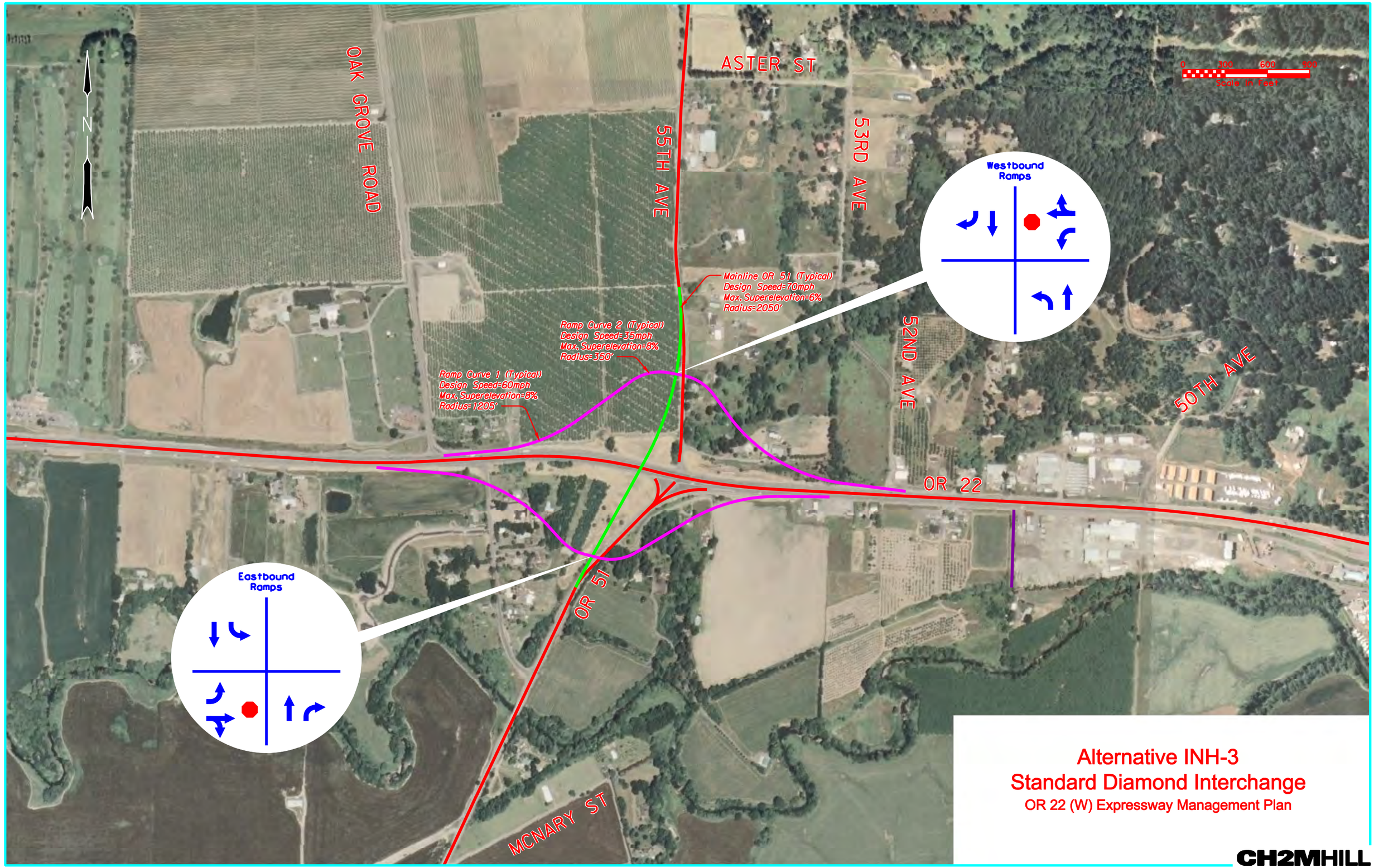


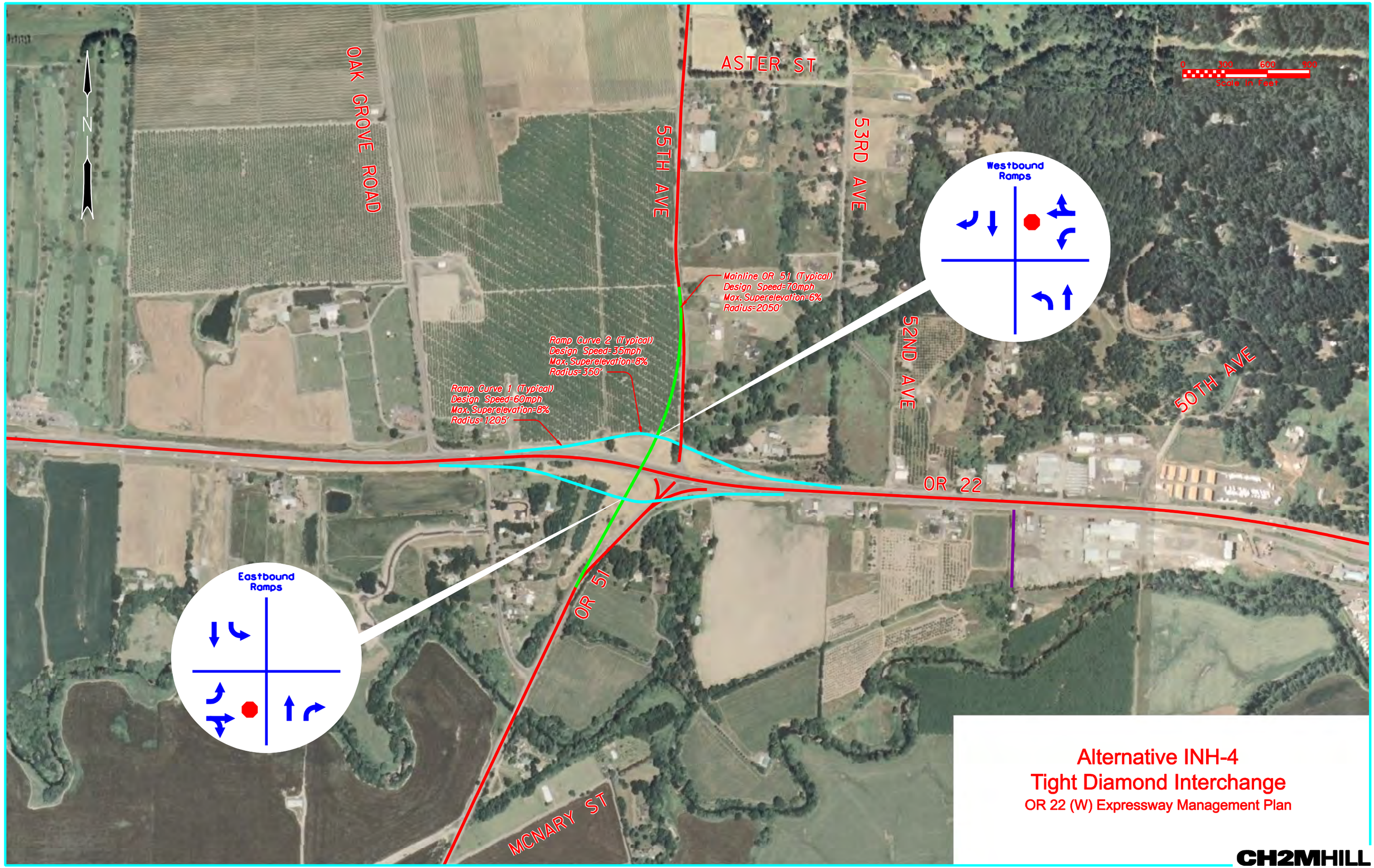
Alternative GWR-6

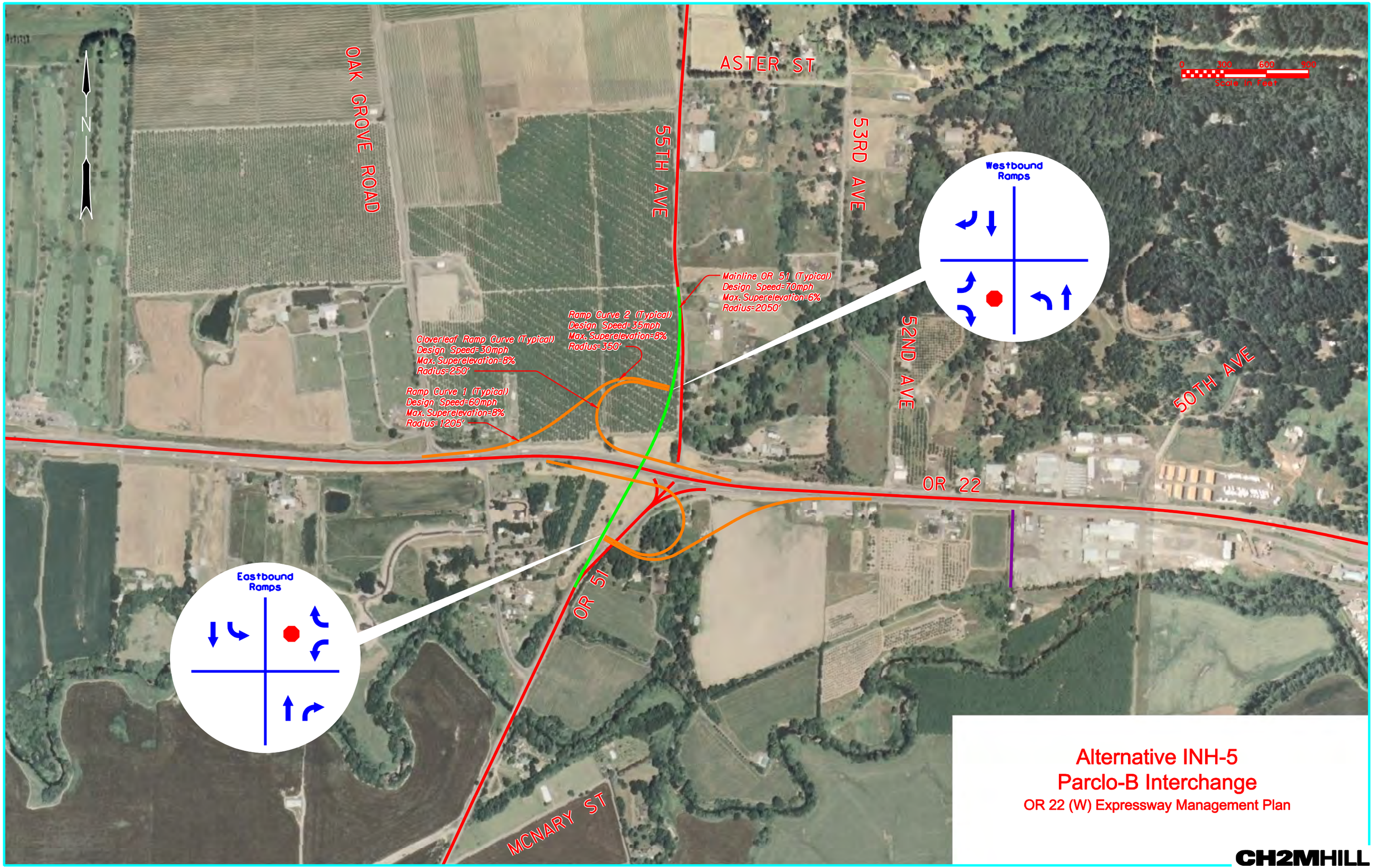
Offset Dual "T" Intersections with Wide Center Turn Lane

OR 22 (W) Expressway Management Plan

CH2MHILL

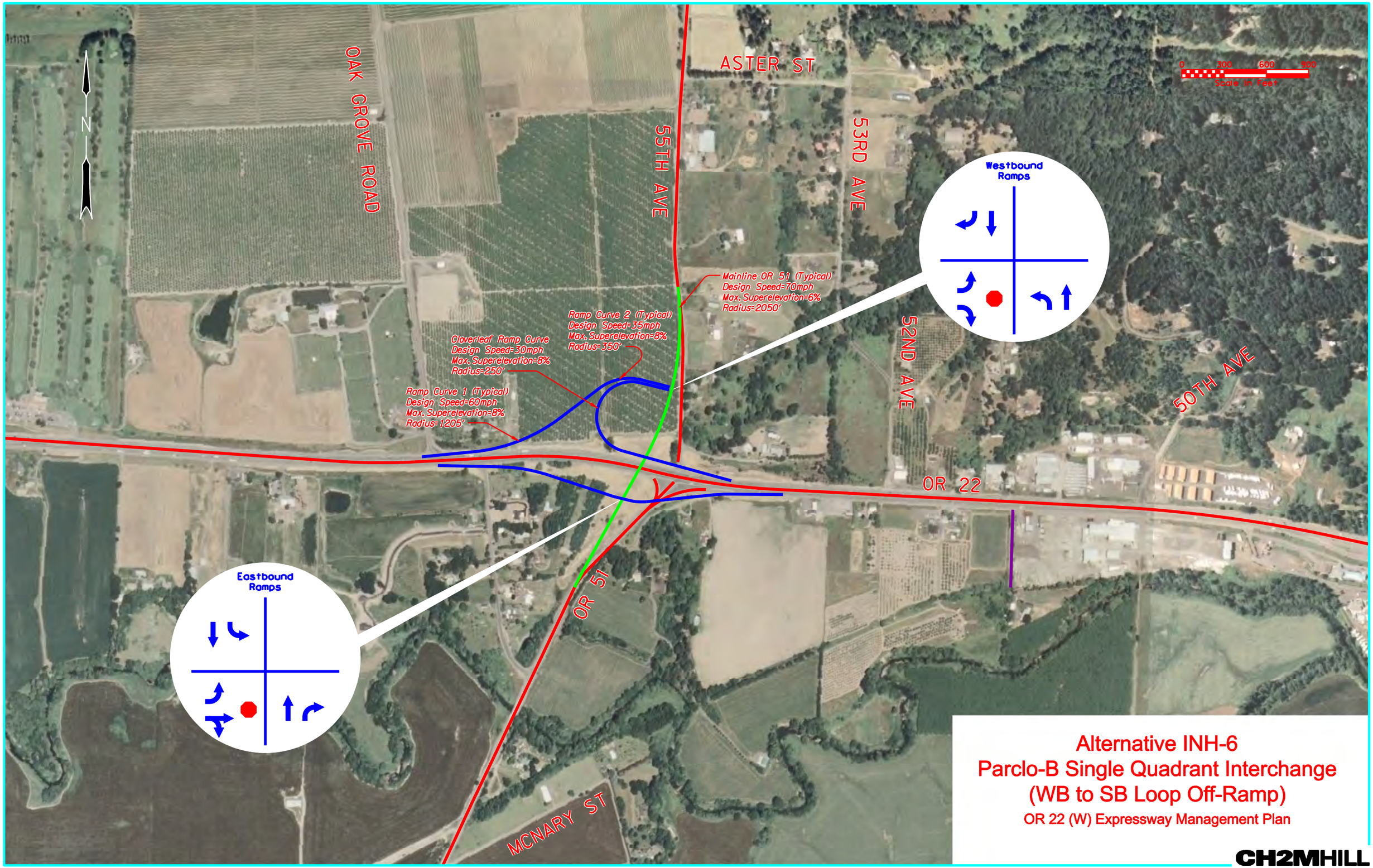

N
OAK GROVE ROAD
55TH AVE
ASTER ST
53RD AVE
52ND AVE
50TH AVE
OR 22
OR 51
MCNARY ST
0 300 600 900
Scale in Feet
Westbound Ramps
Eastbound Ramps
Mainline OR 51 (Typical)
Design Speed=70mph
Max. Superelevation=6%
Radius=2050'
Ramp Curve 2 (Typical)
Design Speed=35mph
Max. Superelevation=8%
Radius=350'
Ramp Curve 1 (Typical)
Design Speed=60mph
Max. Superelevation=8%
Radius=1205'
Alternative INH-3
Standard Diamond Interchange
OR 22 (W) Expressway Management Plan
CH2MHILL


N
OAK GROVE ROAD
55TH AVE
ASTER ST
53RD AVE
52ND AVE
50TH AVE
OR 22
OR 51
MCNARY ST
0 300 600 900
Scale in Feet
Mainline OR 51 (Typical)
Design Speed=70mph
Max.Superelevation=6%
Radius=2050'
Ramp Curve 2 (Typical)
Design Speed=35mph
Max.Superelevation=8%
Radius=350'
Ramp Curve 1 (Typical)
Design Speed=60mph
Max.Superelevation=8%
Radius=1205'
Westbound Ramps
Eastbound Ramps
Alternative INH-4
Tight Diamond Interchange
OR 22 (W) Expressway Management Plan
CH2MHILL



Alternative INH-5
Parclo-B Interchange
OR 22 (W) Expressway Management Plan

CH2MHILL

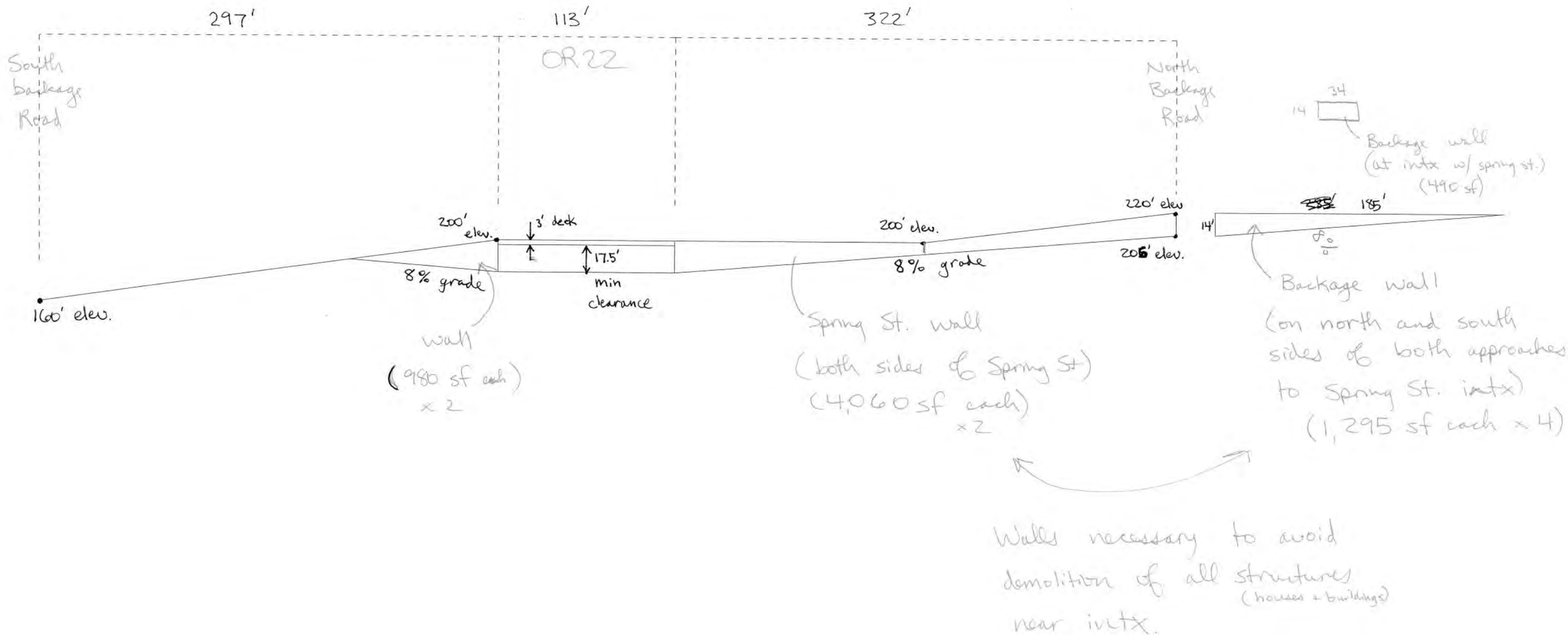


Alternative INH-6
Parclo-B Single Quadrant Interchange
(WB to SB Loop Off-Ramp)
OR 22 (W) Expressway Management Plan

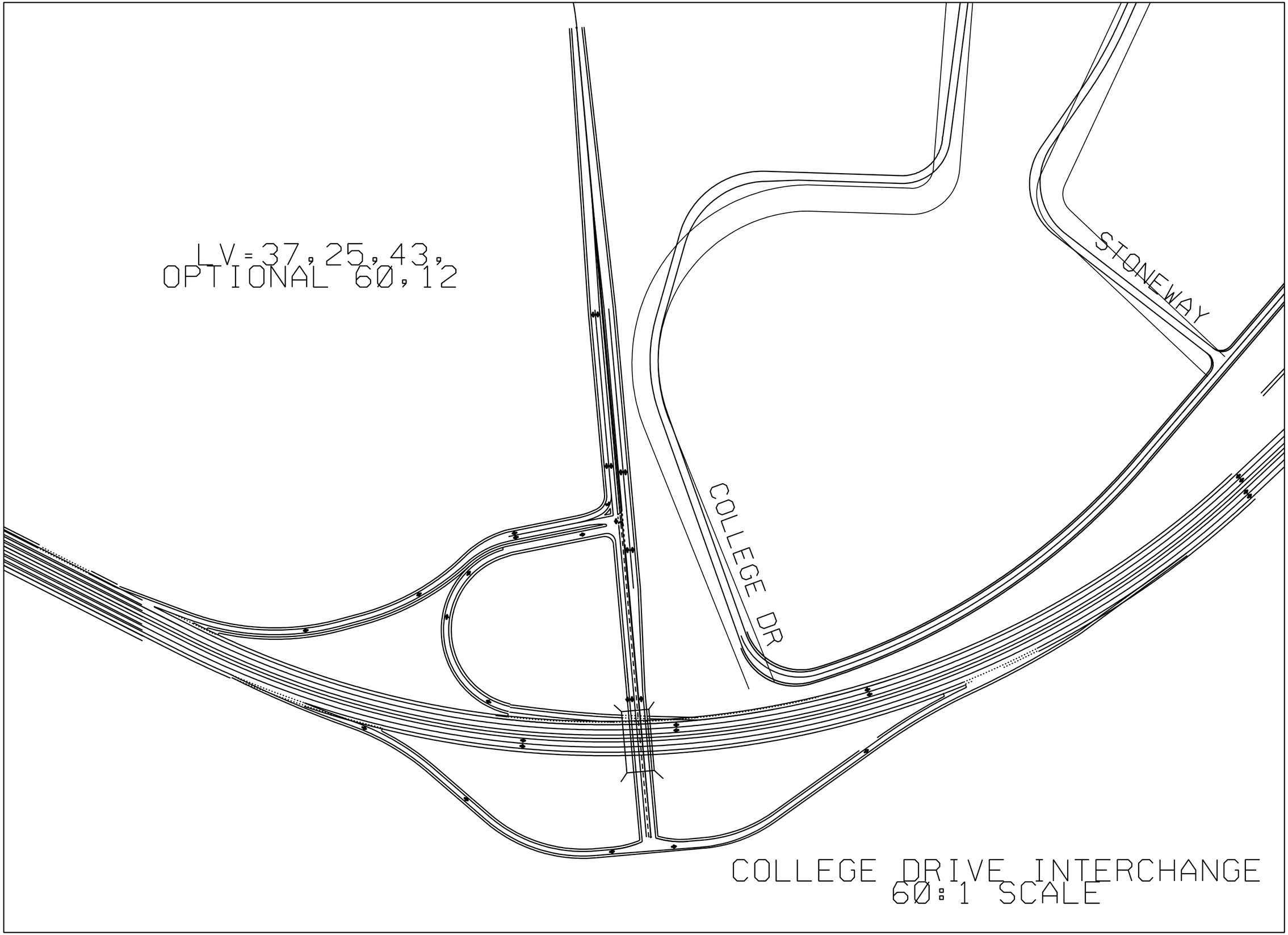
CH2MHILL

1-7-08

Approx. Cross Section
Spring St. Undercrossing



* Elevations from simple topo map (Rosa\Proj\ODOT\356019\GIS\Output\Basemp_w_Topo_.5Mile_Area.pdf)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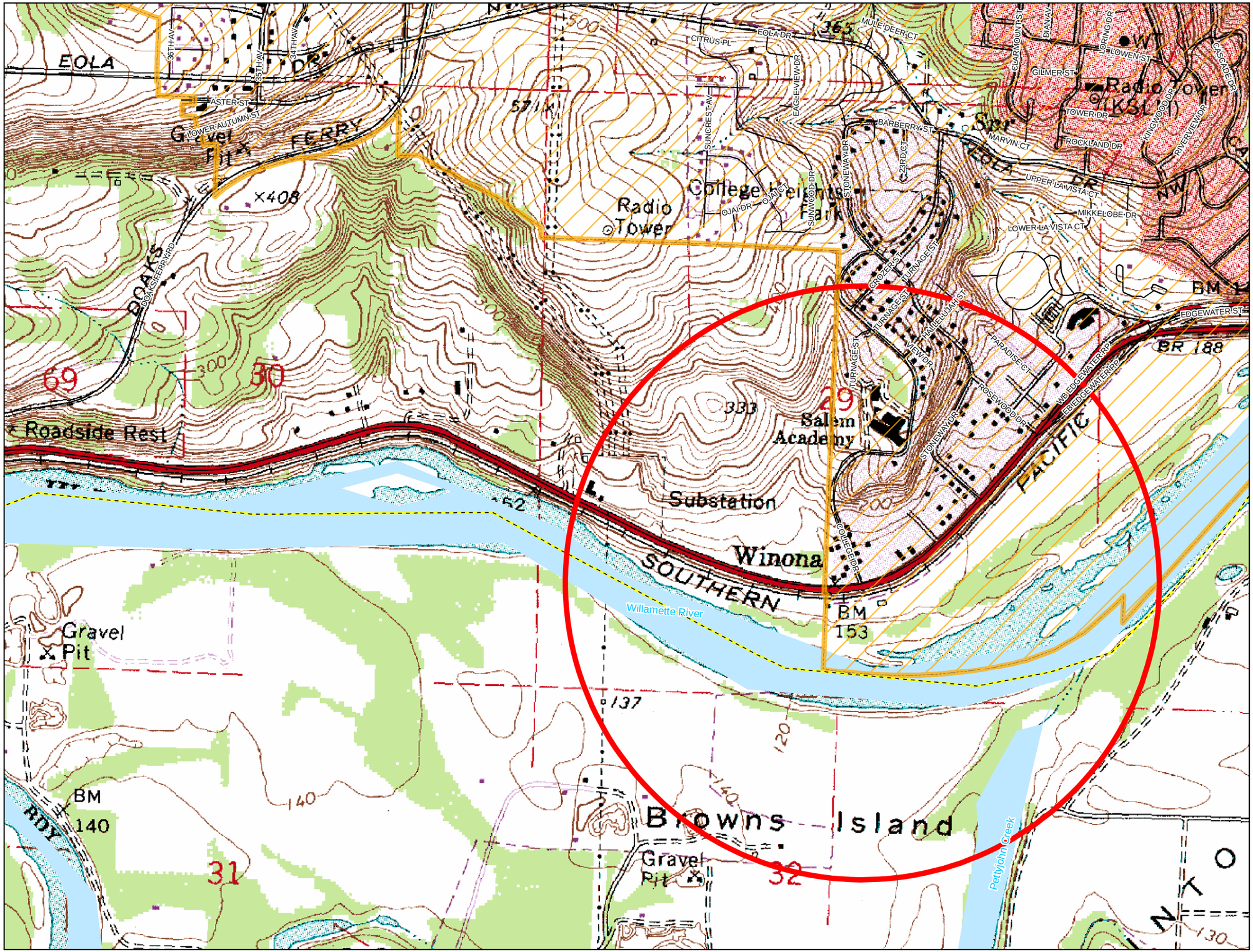
OPTIONAL 60,12
STONEWAY
COLLEGE DR
COLLEGE DRIVE INTERCHANGE
60:1 SCALE



Alternative New OR 22 Connection for Doaks Ferry Road at College Drive

LEGEND

- Possible Interchange Area
- Highways and Roads
- Creeks and Streams
- Willamette River
- Urban Growth Boundary
- Counties

SOURCE: POLK COUNTY GIS

0 0.25 Miles

File Path: \\rosa\proj\ODOT\356019\GIS\MapDocuments\Alternative_CollegeDr.mxd, Date: Sept 21, 2007 1:22:04 PM

APPENDIX I

Alternatives Evaluation Summary for Intersections

Alternatives Cost Estimates

Alternatives Benefit/Cost Analysis Worksheets

OR 22 (W) Expressway Management Plan

Project Management Team Evaluation

As of: December 2007

● Directly/positively meets intent of criterion ◖ Partially meets intent of criterion ○ Does not support intent of criterion N/A Not applicable—neither meets/doesn't meet intent of criterion

	OR 22/OR 51 Interchange Alternatives				Doaks Ferry Road Alternatives			Greenwood Road Alternatives			
Evaluation Criteria **—Features** **—Measures**	**INH-3: Standard Diamond Interchange**	**INH-4: Tight Diamond Interchange**	**INH-5: Parclo-B**	**INH-6: Parclo-B Single Quadrant (WB to SB Loop)**	**DFR-2: Relocated Access Option—Riggs Street and RI only at DFR**	**DFR-4: Spring Street Undercrossing Option**	**DFR-7: Eastbound Access Option--center turn refuge; LI/RI/RO**	**GWR-3: Barrier median; RI/RO only**	**GWR-4a: Grade separate w/ WB RI/RO**	**GWR-4b: Grade separate w/o OR 22 access**	**GWR-6: Offset Dual "T" Intersections**
Mobility	◖	◖	●	◖	◖	●	◖	●	●	●	◖
—improves future flow —OHP standard for volume to capacity ratio	–Would require signalization of the ramp terminals to meet design mobility standards	–Would require signalization of the ramp terminals to meet design mobility standards	–Best accommodates the critical EB and WB left-turn movements at the ramp terminals under unsignalized conditions	–Would require signalization of the EB ramp terminal to meet the design mobility standard	–Does not eliminate the critical EB to NB left-turn which is forecast to operate above capacity through the 2030 horizon year.	–Eliminates need for center turn refuge for EB to left-in access	–Does not eliminate the critical EB to NB left-turn which is forecast to operate above capacity through the 2030 horizon year.	–Satisfies standard.	– Satisfies standard	– Satisfies standard	– Creates additional turning movements –Satisfies standard
Access Management	●	●	●	●	◖	◖	◖	●	●	●	◖
—fewer conflict points —spacing standards between ramps, public roads, and driveways	–Grade separated interchanges are consistent with the access management policy for Expressways.	–Grade separated interchanges are consistent with the access management policy for Expressways.	–Grade separated interchanges are consistent with the access management policy for Expressways.	–Grade separated interchanges are consistent with the access management policy for Expressways.	–Consistent with access management goals which call for highly controlled public road connections –Meets access spacing standards	–Consistent with access management goals which call for highly controlled public road connections –Meets access spacing standards	–Consistent with access management goals which call for highly controlled public road connections –Meets access spacing standards	–Consistent with access management goals which call for highly controlled public road connections.	–Consistent with access management goals which call for highly controlled public road connections. –Reduces conflict points from 40 to 2	–Goes above and beyond the access management standards by completely eliminating access to OR 22 –Best supports function of expressway.	–Not entirely consistent with access management goals. –Does not reduce conflict points but moves some to a different location.
Connectivity	●	●	●	●	◖	●	◖	○	●	◖	●
—direct, efficient access to industries and businesses —optional routes	–Connection to system of local frontage and backage roads provides access and optional routes	–Connection to system of local frontage and backage roads provides access and optional routes	–Connection to system of local frontage and backage roads provides access and optional routes	–Connection to system of local frontage and backage roads provides access and optional routes	–Eliminates SB to EB left turn, which is a minor move –Provides connection to local system on north side of highway –U-turn lane WB to EB provides optional route	–Provides access to properties on both sides of highway –Provides connections to local system on both sides of highway	–Eliminates SB to EB left turn, which is a minor move –Provides connection to local system on north side of highway –U-turn lane WB to EB provides optional route	–Eliminates north-south connectivity for farm equipment and school buses –Mitigation would be overcrossing at other location or improve informal farm equipment undercrossing at Derry (next to RR)	–Provides an efficient grade separated north/south crossing of OR 22 while still accommodating WB access to/from the highway. Will facilitate OR 22 detour route if there are problems on the highway.	–Provides an efficient grade separated north/south crossing of OR 22, but does not provide direct access to the highway	–Accommodates WB and EB access to/from the highway. Will facilitate OR 22 detour route if there are problems on the highway.

	OR 22/OR 51 Interchange Alternatives				Doaks Ferry Road Alternatives			Greenwood Road Alternatives			
Evaluation Criteria **—Features** **—Measures**	**INH-3: Standard Diamond Interchange**	**INH-4: Tight Diamond Interchange**	**INH-5: Parclo-B**	**INH-6: Parclo-B Single Quadrant (WB to SB Loop)**	**DFR-2: Relocated Access Option—Riggs Street and RI only at DFR**	**DFR-4: Spring Street Undercrossing Option**	**DFR-7: Eastbound Access Option--center turn refuge; LI/RI/RO**	**GWR-3: Barrier median; RI/RO only**	**GWR-4a: Grade separate w/ WB RI/RO**	**GWR-4b: Grade separate w/o OR 22 access**	**GWR-6: Offset Dual "T" Intersections**
Safety	●	●	●	●	◖	●	◖	●	●	●	◖
—reduces conflict points —minimizes emergency response times	–A grade separated interchange would improve the operational safety concerns of the existing at-grade intersection.	–A grade separated interchange would improve the operational safety concerns of the existing at-grade intersection.	–A grade separated interchange would improve the operational safety concerns of the existing at-grade intersection.	–A grade separated interchange would improve the operational safety concerns of the existing at-grade intersection.	–Relocation to straight segment reduces potential for intersection related crashes but does not fully address the operational and safety problems. –Out of direction travel required for return route for emergency vehicles.	–Eliminates the most difficult EB to NB and SB to WB left-turn movements. –Provides fairly direct return route for emergency vehicles.	–The allowance of the EB to NB left-turn movement only partially addresses the operational and safety problems of intersection turning movements. –Out of direction travel required for return route for emergency vehicles.	–A median barrier would restrict the intersection to RI/RO, thereby eliminating the difficult left-turn and crossing movements.	–A grade separated overpass would provide a safe crossing opportunity for farm equipment and school busses.	–A grade separated overpass would provide a safe crossing opportunity for farm equipment and school busses.	–Adds conflict points from turn movements but would relocate some movements to a different location.
Natural Environment	◖	◖	◖	◖	●	◖	●	●	◖	◖	◖
—Farm, forest, wetlands, wildlife, air quality —minimum impacts to sensitive areas	–McNary Creek in all quadrants to avoid –Floodplain in extreme SE and SW quadrants	–McNary Creek in all quadrants to avoid –Floodplain in extreme SE and SW quadrants –Smallest footprint	–McNary Creek in all quadrants to avoid –Floodplain in extreme SE and SW quadrants –Largest footprint	–McNary Creek in all quadrants to avoid –Floodplain in extreme SE and SW quadrants	–Not anticipated to have any adverse environmental impacts.	–Possible adverse environmental impacts from extensive excavations.	–Not anticipated to have any adverse environmental impacts.	–Not anticipated to have any adverse environmental impacts.	–T&E plant in NW quadrant that would have to be avoided –Floodplain in SW quadrant to avoid –Wetlands in NE quadrant to avoid	–T&E plant in NW quadrant that would have to be avoided –Floodplain in SW quadrant to avoid –Wetlands in NE quadrant to avoid	–T&E plant in NW quadrant that would have to be avoided –Wetlands in NE quadrant to avoid
Built Environment	◖	◖	◖	◖	◖	◖	◖	●	◖	◖	◖
—Developable properties, residential parcels, historic properties —Minimum land use, social, historic displacements	–Avoidance of Brunk House –Forest Zone in NE and SW quadrants to avoid –EFU Zone in NW and SW quadrants	–Avoidance of Brunk House –Forest Zone in NE and SW quadrants to avoid –Least land taken from EFU Zone in NW and SW quadrants	–Avoidance of Brunk House –Forest Zone in NE and SW quadrants to avoid –Most land taken from EFU Zone in NW and SW quadrants	–Avoidance of Brunk House –Forest Zone in NE and SW quadrants to avoid –EFU Zone in NW and SW quadrants	–Eliminates SB vehicle access from DFR to Holman Wayside –New roadway could impact existing land use	–Eliminates SB vehicle access from DFR to Holman Wayside –New roadway could impact existing land use	–Continues vehicle access to Holman Wayside –No change to land use	–	–Minor impacts to farm (EFU) lands –Frontage road impacts to EFU lands.	–Minor impacts to farm (EFU) lands	–Minor impacts to farm (EFU) lands –Frontage road impacts to EFU lands. –Turn lanes would need to accommodate farm equipment.
Business	◖	◖	◖	◖	●	◖	●	○	●	◖	◖
—Parking, access, jobs —Minimum business relocations or eliminations	–Would remove some acreage from producing hazelnut orchard	–Would remove least acreage from producing hazelnut orchard	–Would remove the most acreage from producing hazelnut orchard	–Would remove some acreage from producing hazelnut orchard	– U-turn could need more right-of-way	–Possible RV parking lost –Possible excavation impacts	–U-turn could impact weigh station	–Would prevent farm equipment movement across highway	–Supports farm operations and access	–Supports farm operations	–Supports farm operations

	OR 22/OR 51 Interchange Alternatives				Doaks Ferry Road Alternatives			Greenwood Road Alternatives			
Evaluation Criteria **—Features** **—Measures**	**INH-3: Standard Diamond Interchange**	**INH-4: Tight Diamond Interchange**	**INH-5: Parclo-B**	**INH-6: Parclo-B Single Quadrant (WB to SB Loop)**	**DFR-2: Relocated Access Option—Riggs Street and RI only at DFR**	**DFR-4: Spring Street Undercrossing Option**	**DFR-7: Eastbound Access Option--center turn refuge; LI/RI/RO**	**GWR-3: Barrier median; RI/RO only**	**GWR-4a: Grade separate w/ WB RI/RO**	**GWR-4b: Grade separate w/o OR 22 access**	**GWR-6: Offset Dual "T" Intersections**
Plan Consistency	◖	◖	◖	◖	◖	◖	●	◖	◖	◖	◖
—land use and transportation plans	–CPA required to incorporate into county and SKATS TSPs	–CPA required to incorporate into county and SKATS TSPs	–CPA required to incorporate into county and SKATS TSPs	–CPA required to incorporate into county and SKATS TSPs	–CPA required to incorporate into county and SKATS TSPs	–CPA required to incorporate into county and SKATS TSPs	–No CPA required to incorporate into county and SKATS TSPs	–CPA required to incorporate into county TSP	–CPA required to incorporate into county TSP –Goal exception	–CPA required to incorporate into county TSP –Goal exception	–CPA required to incorporate into county TSP –Goal exception
Flexibility	◖	◖	◖	◖	◖	◖	●	◖	◖	◖	●
—potential to phase or separate —constrained funding	–Interchange can be built as final phase after local access roads – interchange by itself probably not phaseable	–Interchange can be built as final phase after local access roads – interchange by itself probably not phaseable	–Interchange can be built as final phase after local access roads – interchange by itself probably not phaseable	–Interchange can be built as final phase after local access roads – interchange by itself probably not phaseable	–Component can be a phase of a larger project but not phaseable by itself	–Component can be a phase of a larger project but not phaseable by itself	–Component can be a phase of a larger project and is phaseable by itself	–component can be a phase of a larger project but not phaseable by itself	–component can be a phase of a larger project but not phaseable by itself	–component can be a phase of a larger project but not phaseable by itself	–component can be a phase of a larger project and also phaseable by itself
Cost	–●	–●	–●	–●	–●	–◖	–●	–●	–◖	–◖	–●
—multiple funding sources —benefit/cost ratio —cost effective	–Similar to others	–Similar to others	–Similar to others	–Similar to others	–Low cost –Pavement	–High cost –Excavation	–Low cost –Paint	–Median cost only	–Structure and frontage road costs	–Structure cost	–Provides movement without structure cost but requires frontage road

● Directly/positively meets intent of criterion ◖ Partially meets intent of criterion ○ Does not support intent of criterion N/A Not applicable—neither meets/doesn't meet intent of criterion

CH2M HILL
SUMMARY - ORDER-OF-MAGNITUDE ESTIMATE

PROJECT:	OR22/51 Expressway Management Plan North Backage Roads	REFERENCE NAME/PHONE			SHEET 1 of 1
DESIGN LEVEL:	Preliminary				
KIND OF WORK:	Roadway	LENGTH (MI.):	2.08	DATE 1/8/2008	NAME J. Shamrell

NO.	ITEM	UNIT	UNIT COST	QUANTITY	COST
1	Curb, Gutter, Sidewalks & Drainage	Mi.	$543,000	0.00	$ -
2	Bike Boulevard	Mi.	$102,000	0.00	$ -
3	New Roadway	Lane-Mi.	$455,000	5.88	$ 2,681,466.67
4	Overlay Existing Roadway	Lane-Mi	$66,000	0.00	$ -
5	Reconstruct Existing Roadway	Lane-Mi.	$483,000	0.00	$ -
6	Intersection Widening	EA	$46,000	0.00	$ -
7	Restriping Existing Roadway	Lane-Mi.	$15,000	0.00	$ -
8	Interconnect Signal	LS	$30,000	0.00	$ -
9	New Signal	EA	$180,000	0.00	$ -
10	Signal Modifications	EA	$60,000	0.00	$ -
11	Transit Enhancements	EA	$25,000	0.00	$ -
12	Traffic Calming (See note 1)	%	-	0.0%	$ -
13	Illumination	Mi.	$260,000	0.00	$ -
14	Landscaping	Mi.	$225,000	0.00	$ -
15	Bridges (See note 2)	SF	$200	0.00	$ -
16	Walls	SF	$50	0.00	$ -
	SUBTOTAL				$ 2,681,466.67

	ADDITIONAL COSTS		RANGE	PERCENTAGE	COST
	Construction Surveying		1.0-2.5%	2.5%	$ 67,000.00
	TP & DT		3.0-8.0%	8.0%	$ 215,000.00
	Mobilization		8.0-10.0%	10.0%	$ 268,000.00
	Erosion Control		0.5-2.0%	2.0%	$ 54,000.00
	Contingency		40.0%	40.0%	$ 1,073,000.00
	Escalation (per year)		0.5-2.0%	0.0%	
	-Current Year			0	$ -
	TOTAL CONSTRUCTION COST				$ 4,358,466.67
	Design Engineering	13.0%	13.0%	13.0%	$ 567,000.00
	Construction Engineering	10.0%	10.0%	10.0%	$ 436,000.00
	TOTAL PROJECT COST				**$5,361,467**

CH2M HILL
SUMMARY - ORDER-OF-MAGNITUDE ESTIMATE

PROJECT:	OR22/51 Expressway Management Plan South Backage Roads	REFERENCE NAME/PHONE			SHEET 1 of 1
DESIGN LEVEL:	Preliminary				
KIND OF WORK:	Roadway	LENGTH (MI.)	1.77	DATE 1/8/2008	NAME J. Shamrell

NO.	ITEM	UNIT	UNIT COST	QUANTITY	COST
1	Curb, Gutter, Sidewalks & Drainage	Mi.	$543,000	0.00	$ -
2	Bike Boulevard	Mi.	$102,000	0.00	$ -
3	New Roadway	Lane-Mi.	$455,000	5.02	$ 2,281,825.00
4	Overlay Existing Roadway	Lane-Mi.	$66,000	0.00	$ -
5	Reconstruct Existing Roadway	Lane-Mi.	$483,000	0.00	$ -
6	Intersection Widening	EA	$46,000	0.00	$ -
7	Restriping Existing Roadway	Lane-Mi.	$15,000	0.00	$ -
8	Interconnect Signal	LS	$30,000	0.00	$ -
9	New Signal	EA	$180,000	0.00	$ -
10	Signal Modifications	EA	$60,000	0.00	$ -
11	Transit Enhancements	EA	$25,000	0.00	$ -
12	Traffic Calming (See note 1)	%	-	0.0%	$ -
13	Illumination	Mi.	$260,000	0.00	$ -
14	Landscaping	Mi.	$225,000	0.00	$ -
15	Bridges (See note 2)	SF	$200	1,700.00	$ 340,000.00
16	Walls	SF	$50	0.00	$ -
	SUBTOTAL				$ 2,621,825.00

	ADDITIONAL COSTS		RANGE	PERCENTAGE	COST
	Construction Surveying		1.0-2.5%	2.5%	$ 66,000.00
	TP & DT		3.0-8.0%	8.0%	$ 210,000.00
	Mobilization		8.0-10.0%	10.0%	$ 262,000.00
	Erosion Control		0.5-2.0%	2.0%	$ 52,000.00
	Contingency		40.0%	40.0%	$ 1,049,000.00
	Escalation (per year)		0.5-2.0%	0.0%	
	-Current Year			0	$ -
	TOTAL CONSTRUCTION COST				$ 4,260,825.00
	Design Engineering	13.0%	13.0%	13.0%	$ 554,000.00
	Construction Engineering	10.0%	10.0%	10.0%	$ 426,000.00
	TOTAL PROJECT COST				**$5,240,825**

CH2M HILL
SUMMARY - ORDER-OF-MAGNITUDE ESTIMATE

PROJECT:	OR22/51 Expressway Management Plan GWR-3	REFERENCE NAME/PHONE			SHEET 1 of 1
DESIGN LEVEL:	Preliminary				
KIND OF WORK:	Roadway/Structure	LENGTH (MI.): 0.4		DATE 6/1/2007	NAME Geoff Hunsaker

NO.	ITEM	UNIT	UNIT COST	QUANTITY	COST
1	Curb, Gutter, Sidewalks & Drainage	Mi	$543,000	0.00	$0
2	Bike Boulevard	Mi.	$102,000	0.00	$0
3	New Roadway	Lane-Mi.	$416,000	0.02	$8,320
4	Overlay Existing Roadway	Lane-Mi.	$66,000	0.00	$0
5	Reconstruct Existing Roadway	Lane-Mi.	$445,000	0.00	$0
6	Intersection Widening	EA	$46,000	0.00	$0
7	Restriping Existing Roadway	Lane-Mi.	$15,000	0.00	$0
8	Interconnect Signal	LS	$30,000	0.00	$0
9	New Signal	EA	$180,000	0.00	$0
10	Signal Modifications	EA	$60,000	0.00	$0
11	Transit Enhancements	EA	$12,000	2.00	$24,000
12	Traffic Calming (See note 1)	%	-	0.0%	$0
13	Illumination	Mi.	$260,000	0.00	$0
14	Landscaping	Mi.	$225,000	0.00	$0
15	Bridges (See note 2)	SF	$200	0.00	$0
16	Walls	SF	$50	0.00	$0
	SUBTOTAL				***$32,320***

	ADDITIONAL COSTS		RANGE	PERCENTAGE	COST
	Construction Surveying		1.0-2.5%	2.5%	$1,000
	TP & DT		3.0-8.0%	8.0%	$3,000
	Mobilization		8.0-10.0%	10.0%	$3,000
	Erosion Control		0.5-2.0%	2.0%	$1,000
	Contingency		40.0%	40.0%	$13,000
	Escalation (per year)		0.5-2.0%	0.0%	
	-Current Year			0	$0
	TOTAL CONSTRUCTION COST				***$53,320***
	Design Engineering	13.0%	13.0%	0.0%	$7,000
	Construction Engineering	10.0%	10.0%	0.0%	$5,000
	TOTAL PROJECT COST				**$65,320**

CH2M HILL
SUMMARY - ORDER-OF-MAGNITUDE ESTIMATE

PROJECT:	OR22/51 Expressway Management Plan GWR-4a	REFERENCE NAME/PHONE			SHEET 1 of 1
DESIGN LEVEL:	Preliminary				
KIND OF WORK:	Roadway/Structure	LENGTH (MI.): 0.4		DATE 8/1/2007	NAME Geoff Hunsaker

NO.	ITEM	UNIT	UNIT COST	QUANTITY	COST
1	Curb, Gutter, Sidewalks & Drainage	Mi.	$543,000	0.00	$0
2	Bike Boulevard	Mi.	$102,000	0.00	$0
3	New Roadway	Lane-Mi.	$1,637,000	0.08	$130,960
4	Overlay Existing Roadway	Lane-Mi.	$66,000	0.00	$0
5	Reconstruct Existing Roadway	Lane-Mi.	$1,665,000	0.72	$1,198,800
6	Intersection Widening	EA	$46,000	0.00	$0
7	Restriping Existing Roadway	Lane-Mi.	$15,000	0.00	$0
8	Interconnect Signal	LS	$30,000	0.00	$0
9	New Signal	EA	$180,000	0.00	$0
10	Signal Modifications	EA	$80,000	0.00	$0
11	Transit Enhancements	EA	$12,000	1.00	$12,000
12	Traffic Calming (See note 1)	%	-	0.0%	$0
13	Illumination	Mi.	$280,000	0.00	$0
14	Landscaping	Mi.	$225,000	0.00	$0
15	Bridges (See note 2)	SF	$200	8,000.00	$1,600,000
16	Walls	SF	$50	0.00	$0
	SUBTOTAL				***$2,941,760***

	ADDITIONAL COSTS		RANGE	PERCENTAGE	COST
	Construction Surveying		1.0-2.5%	2.5%	$74,000
	TP & DT		3.0-8.0%	8.0%	$235,000
	Mobilization		8.0-10.0%	10.0%	$294,000
	Erosion Control		0.5-2.0%	2.0%	$59,000
	Contingency		40.0%	40.0%	$1,177,000
	Escalation (per year)		0.5-2.0%	0.0%	
	-Current Year			0	$0
	TOTAL CONSTRUCTION COST				***$4,780,760***
	Design Engineering	13.0%	13.0%	0.0%	$621,000
	Construction Engineering	10.0%	10.0%	0.0%	$478,000
	TOTAL PROJECT COST				**$5,879,760**

CH2M HILL
SUMMARY - ORDER-OF-MAGNITUDE ESTIMATE

PROJECT	OR22/51 Expressway Management Plan GWR-4b	REFERENCE NAME/PHONE			SHEET 1 of 1
DESIGN LEVEL:	Preliminary				
KIND OF WORK:	Roadway/Structure	LENGTH (MI.): 0.4		DATE 6/1/2007	NAME Geoff Hunsaker

NO.	ITEM	UNIT	UNIT COST	QUANTITY	COST
1	Curb, Gutter, Sidewalks & Drainage	Mi.	$543,000	0.00	$0
2	Bike Boulevard	Mi.	$102,000	0.00	$0
3	New Roadway	Lane-Mi.	$1,637,000	0.08	$130,960
4	Overlay Existing Roadway	Lane-Mi.	$86,000	0.00	$0
5	Reconstruct Existing Roadway	Lane-Mi.	$1,665,000	0.72	$1,198,800
6	Intersection Widening	EA	$48,000	0.00	$0
7	Restriping Existing Roadway	Lane-Mi.	$15,000	0.00	$0
8	Interconnect Signal	LS	$30,000	0.00	$0
9	New Signal	EA	$180,000	0.00	$0
10	Signal Modifications	EA	$60,000	0.00	$0
11	Transit Enhancements	EA	$12,000	0.00	$0
12	Traffic Calming (See note 1)	%		0.0%	$0
13	Illumination	Mi.	$200,000	0.00	$0
14	Landscaping	Mi.	$225,000	0.00	$0
15	Bridges (See note 2)	SF	$200	8,000.00	$1,600,000
16	Walls	SF	$50	0.00	$0
	SUBTOTAL				***$2,929,760***

	ADDITIONAL COSTS		RANGE	PERCENTAGE	COST
	Construction Surveying		1.0-2.5%	2.5%	$73,000
	TP & DT		3.0-8.0%	8.0%	$234,000
	Mobilization		8.0-10.0%	10.0%	$293,000
	Erosion Control		0.5-2.0%	2.0%	$59,000
	Contingency		40.0%	40.0%	$1,172,000
	Escalation (per year)		0.5-2.0%	0.0%	
	-Current Year			0	$0
	TOTAL CONSTRUCTION COST				***$4,760,760***
	Design Engineering	13.0%	13.0%	0.0%	$619,000
	Construction Engineering	10.0%	10.0%	0.0%	$476,000
	TOTAL PROJECT COST				**$5,855,760**

CH2M HILL
SUMMARY - ORDER-OF-MAGNITUDE ESTIMATE

PROJECT:	OR22/51 Expressway Management Plan GWR-6	REFERENCE NAME/PHONE			SHEET 1 of 1
DESIGN LEVEL:	Preliminary				
KIND OF WORK:	Roadway/Structure	LENGTH (MI.):		DATE 1/8/2008	NAME J. Shamrell

NO.	ITEM	UNIT	UNIT COST	QUANTITY	COST
1	Curb, Gutter, Sidewalks & Drainage	Mi.	$543,000	0.00	$0
2	Bike Boulevard	Mi.	$102,000	0.00	$0
3	New Roadway	Lane-Mi.	$455,000	1.40	$638,723
4	Overlay Existing Roadway	Lane-Mi.	$66,000	2.34	$154,519
5	Reconstruct Existing Roadway	Lane-Mi.	$483,000	0.00	$0
6	Intersection Widening	EA	$46,000	0.00	$0
7	Restriping Existing Roadway	Lane-Mi.	$15,000	0.00	$0
8	Interconnect Signal	LS	$30,000	0.00	$0
9	New Signal	EA	$160,000	0.00	$0
10	Signal Modifications	EA	$60,000	0.00	$0
11	Transit Enhancements	EA	$12,000	0.00	$0
12	Traffic Calming (See note 1)	%	-	0.0%	$0
13	Illumination	Mi.	$260,000	0.00	$0
14	Landscaping	Mi.	$225,000	0.00	$0
15	Bridges (See note 2)	SF	$200	0.00	$0
16	Walls	SF	$50	0.00	$0
	SUBTOTAL				***$793,242***

	ADDITIONAL COSTS		RANGE	PERCENTAGE	COST
	Construction Surveying		1.0-2.5%	2.5%	$20,000
	TP & DT		3.0-8.0%	8.0%	$63,000
	Mobilization		8.0-10.0%	10.0%	$79,000
	Erosion Control		0.5-2.0%	2.0%	$16,000
	Contingency		40.0%	40.0%	$317,000
	Escalation (per year)		0.5-2.0%	0.0%	
	-Current Year			0	$0
	TOTAL CONSTRUCTION COST				***$1,288,242***
	Design Engineering	13.0%	13.0%	13.0%	$167,000
	Construction Engineering	10.0%	10.0%	10.0%	$129,000
	TOTAL PROJECT COST				**$1,584,242**

CH2M HILL
SUMMARY - ORDER-OF-MAGNITUDE ESTIMATE

PROJECT:	OR22/51 Expressway Management Plan INH-3	REFERENCE NAME/PHONE			SHEET 1 of 1
DESIGN LEVEL:	Preliminary				
KIND OF WORK:	Roadway/Structure	LENGTH (MI.): 1.52		DATE 6/1/2007	NAME Darren Hippenstiel

NO.	ITEM	UNIT	UNIT COST	QUANTITY	COST
1	Curb, Gutter, Sidewalks & Drainage	Mi.	$543,000	1.52	$825,360
2	Bike Boulevard	Mi.	$102,000	0.00	$0
3	New Roadway	Lane-Mi.	$835,000	5.61	$4,684,350
4	Overlay Existing Roadway	Lane-Mi.	$66,000	0.00	$0
5	Reconstruct Existing Roadway	Lane-Mi.	$863,000	0.00	$0
6	Intersection Widening	EA	$46,000	0.00	$0
7	Restriping Existing Roadway	Lane-Mi.	$15,000	0.00	$0
8	Interconnect Signal	LS	$30,000	0.00	$0
9	New Signal	EA	$180,000	0.00	$0
10	Signal Modifications	EA	$60,000	0.00	$0
11	Transit Enhancements	EA	$25,000	0.00	$0
12	Traffic Calming (See note 1)	%	-	0.0%	$0
13	Illumination	Mi.	$260,000	1.52	$395,200
14	Landscaping	Mi.	$225,000	1.52	$342,000
15	Bridges (See note 2)	SF	$200	12,300.00	$2,460,000
16	Walls	SF	$50	1,500.00	$75,000
	SUBTOTAL				***$8,781,910***

	ADDITIONAL COSTS		RANGE	PERCENTAGE	COST
	Construction Surveying		1.0-2.5%	2.5%	$220,000
	TP & DT		3.0-8.0%	8.0%	$703,000
	Mobilization		8.0-10.0%	10.0%	$878,000
	Erosion Control		0.5-2.0%	2.0%	$176,000
	Contingency		40.0%	40.0%	$3,513,000
	Escalation (per year)		0.5-2.0%	0.0%	
	-Current Year			0	$0
	TOTAL CONSTRUCTION COST				***$14,271,910***
	Design Engineering	13.0%	13.0%	0.0%	$1,855,000
	Construction Engineering	10.0%	10.0%	0.0%	$1,427,000
	TOTAL PROJECT COST				**$17,553,910**

CH2M HILL
SUMMARY - ORDER-OF-MAGNITUDE ESTIMATE

PROJECT:	OR22/51 Expressway Management Plan INH-4	REFERENCE NAME/PHONE			SHEET 1 of 1
DESIGN LEVEL:	Preliminary				
KIND OF WORK:	Roadway/Structure	LENGTH (MI.): 1.23		DATE 6/1/2007	NAME Darren Hippenstiel

NO.	ITEM	UNIT	UNIT COST	QUANTITY	COST
1	Curb, Gutter, Sidewalks & Drainage	Mi.	$543,000	1.23	$667,890
2	Bike Boulevard	Mi.	$102,000	0.00	$0
3	New Roadway	Lane-Mi.	$927,000	4.59	$4,254,930
4	Overlay Existing Roadway	Lane-Mi.	$85,000	0.00	$0
5	Reconstruct Existing Roadway	Lane-Mi.	$955,000	0.00	$0
6	Intersection Widening	EA	$46,000	0.00	$0
7	Restriping Existing Roadway	Lane-Mi.	$15,000	0.00	$0
8	Interconnect Signal	LS	$30,000	0.00	$0
9	New Signal	EA	$180,000	0.00	$0
10	Signal Modifications	EA	$60,000	0.00	$0
11	Transit Enhancements	EA	$25,000	0.00	$0
12	Traffic Calming (See note 1)	%	-	0.0%	$0
13	Illumination	Mi.	$260,000	1.23	$319,800
14	Landscaping	Mi.	$225,000	1.23	$276,750
15	Bridges (See note 2)	SF	$200	12,300.00	$2,460,000
16	Walls	SF	$50	3,000.00	$150,000
	SUBTOTAL				***$8,129,370***

	ADDITIONAL COSTS		RANGE	PERCENTAGE	COST
	Construction Surveying		1.0-2.5%	2.5%	$203,000
	TP & DT		3.0-8.0%	8.0%	$650,000
	Mobilization		8.0-10.0%	10.0%	$813,000
	Erosion Control		0.5-2.0%	2.0%	$163,000
	Contingency		40.0%	40.0%	$3,252,000
	Escalation (per year)		0.5-2.0%	0.0%	
	-Current Year			0	$0
	TOTAL CONSTRUCTION COST				***$13,210,370***
	Design Engineering	13.0%	13.0%	0.0%	$1,717,000
	Construction Engineering	10.0%	10.0%	0.0%	$1,321,000
	TOTAL PROJECT COST				**$16,248,370**

CH2M HILL
SUMMARY - ORDER-OF-MAGNITUDE ESTIMATE

PROJECT	OR22/51 Expressway Management Plan INH-5	REFERENCE NAME/PHONE			SHEET 1 of 1
DESIGN LEVEL:	Preliminary				
KIND OF WORK:	Roadway/Structure	LENGTH (MI.): 1.81		DATE 6/1/2007	NAME Darren Hippenstiel

NO.	ITEM	UNIT	UNIT COST	QUANTITY	COST
1	Curb, Gutter, Sidewalks & Drainage	MI.	$543,000	1.81	$982,830
2	Bike Boulevard	MI.	$102,000	0.00	$0
3	New Roadway	Lane-Mi.	$835,000	6.08	$5,076,800
4	Overlay Existing Roadway	Lane-Mi.	$66,000	0.00	$0
5	Reconstruct Existing Roadway	Lane-Mi.	$863,000	0.00	$0
6	Intersection Widening	EA	$46,000	0.00	$0
7	Restriping Existing Roadway	Lane-Mi.	$15,000	0.00	$0
8	Interconnect Signal	LS	$30,000	0.00	$0
9	New Signal	EA	$180,000	0.00	$0
10	Signal Modifications	EA	$60,000	0.00	$0
11	Transit Enhancements	EA	$25,000	0.00	$0
12	Traffic Calming (See note 1)	%	-	0.0%	$0
13	Illumination	Mi.	$260,000	1.81	$470,600
14	Landscaping	Mi.	$225,000	1.81	$407,250
15	Bridges (See note 2)	SF	$200	12,300.00	$2,460,000
16	Walls	SF	$50	1,500.00	$75,000
	SUBTOTAL				***$9,472,480***

	ADDITIONAL COSTS		RANGE	PERCENTAGE	COST
	Construction Surveying		1.0-2.5%	2.5%	$237,000
	TP & DT		3.0-8.0%	8.0%	$758,000
	Mobilization		8.0-10.0%	10.0%	$947,000
	Erosion Control		0.5-2.0%	2.0%	$189,000
	Contingency		40.0%	40.0%	$3,789,000
	Escalation (per year)		0.5-2.0%	0.0%	
	-Current Year			0	$0
	TOTAL CONSTRUCTION COST				***$15,392,480***
	Design Engineering	13.0%	13.0%	0.0%	$2,001,000
	Construction Engineering	10.0%	10.0%	0.0%	$1,539,000
	TOTAL PROJECT COST				**$18,932,480**

CH2M HILL
SUMMARY - ORDER-OF-MAGNITUDE ESTIMATE

PROJECT:	OR22/51 Expressway Management Plan INH-6	REFERENCE NAME/PHONE			SHEET 1 of 1
DESIGN LEVEL:	Preliminary				
KIND OF WORK:	Roadway	LENGTH (MI.):		DATE 1/9/2008	NAME Darren Hippenstiel

NO.	ITEM	UNIT	UNIT COST	QUANTITY	COST
1	Curb, Gutter, Sidewalks & Drainage	Mi.	$543,000	1.68	$912,240
2	Bike Boulevard	Mi.	$102,000	0.00	$0
3	New Roadway	Lane-Mi.	$836,000	6.06	$5,066,160
4	Overlay Existing Roadway	Lane-Mi.	$66,000	0.00	$0
5	Reconstruct Existing Roadway	Lane-Mi.	$864,000	0.00	$0
6	Intersection Widening	EA	$46,000	0.00	$0
7	Restriping Existing Roadway	Lane-Mi.	$15,000	0.00	$0
8	Interconnect Signal	LS	$30,000	0.00	$0
9	New Signal	EA	$180,000	0.00	$0
10	Signal Modifications	EA	$60,000	0.00	$0
11	Transit Enhancements	EA	$25,000	0.00	$0
12	Traffic Calming (See note 1)	%	-	0.0%	$0
13	Illumination	Mi.	$260,000	1.68	$436,800
14	Landscaping	Mi.	$225,000	1.68	$378,000
15	Bridges (See note 2)	SF	$200	12,300.00	$2,460,000
16	Walls	SF	$50	1,500.00	$75,000
	SUBTOTAL				***$9,328,200***

	ADDITIONAL COSTS		RANGE	PERCENTAGE	COST
	Construction Surveying		1.0-2.5%	2.5%	$233,000
	TP & DT		3.0-8.0%	8.0%	$746,000
	Mobilization		8.0-10.0%	10.0%	$933,000
	Erosion Control		0.5-2.0%	2.0%	$187,000
	Contingency		40.0%	40.0%	$3,731,000
	Escalation (per year)		0.5-2.0%	0.0%	
	-Current Year			0	$0
	TOTAL CONSTRUCTION COST				***$15,158,200***
	Design Engineering	13.0%	13.0%	0.0%	$1,971,000
	Construction Engineering	10.0%	10.0%	0.0%	$1,516,000
	TOTAL PROJECT COST				**$18,645,200**

CH2M HILL
SUMMARY - ORDER-OF-MAGNITUDE ESTIMATE

PROJECT: OR22/51 Expressway Management Plan DFR-2	REFERENCE NAME/PHONE		SHEET 1 of 1
DESIGN LEVEL: Preliminary			
KIND OF WORK: Roadway	LENGTH (MI.):	DATE 1/8/2008	NAME J. Shamrell

NO.	ITEM	UNIT	UNIT COST	QUANTITY	COST
1	Curb, Gutter, Sidewalks & Drainage	Mi.	$543,000	0.00	$ -
2	Bike Boulevard	Mi.	$102,000	0.00	$ -
3	New Roadway	Lane-Mi.	$455,000	1.00	$ 455,735.35
4	Overlay Existing Roadway	Lane-Mi.	$66,000	2.31	$ 152,712.50
5	Reconstruct Existing Roadway	Lane-Mi.	$483,000	0.00	$ -
6	Intersection Widening	EA	$46,000	0.00	$ -
7	Restriping Existing Roadway	Lane-Mi.	$15,000	0.00	$ -
8	Interconnect Signal	LS	$30,000	0.00	$ -
9	New Signal	EA	$180,000	0.00	$ -
10	Signal Modifications	EA	$60,000	0.00	$ -
11	Transit Enhancements	EA	$25,000	0.00	$ -
12	Traffic Calming (See note 1)	%	-	0.0%	$ -
13	Illumination	Mi.	$260,000	0.00	$ -
14	Landscaping	Mi.	$225,000	0.00	$ -
15	Bridges (See note 2)	SF	$200	0.00	$ -
16	Walls	SF	$50	0.00	$ -
	SUBTOTAL				$ 608,447.85

	ADDITIONAL COSTS		RANGE	PERCENTAGE	COST
	Construction Surveying		1.0-2.5%	2.5%	$ 15,000.00
	TP & DT		3.0-8.0%	8.0%	$ 49,000.00
	Mobilization		8.0-10.0%	10.0%	$ 61,000.00
	Erosion Control		0.5-2.0%	2.0%	$ 12,000.00
	Contingency		40.0%	40.0%	$ 243,000.00
	Escalation (per year)		0.5-2.0%	0.0%	
	-Current Year			0	$ -
	TOTAL CONSTRUCTION COST				$ 988,447.85
	Design Engineering	13.0%	13.0%	13.0%	$ 128,000.00
	Construction Engineering	10.0%	10.0%	10.0%	$ 99,000.00
	TOTAL PROJECT COST				**$1,215,448**

CH2M HILL
SUMMARY - ORDER-OF-MAGNITUDE ESTIMATE

PROJECT:	OR22/51 Expressway Management Plan DFR-4	REFERENCE NAME/PHONE			SHEET 1 of 1
DESIGN LEVEL:	Preliminary				
KIND OF WORK:	Roadway	LENGTH (MI.):		DATE 1/8/2008	NAME J. Shamrell

NO.	ITEM	UNIT	UNIT COST	QUANTITY	COST
1	Curb, Gutter, Sidewalks & Drainage	MI.	$543,000	0.00	$ -
2	Bike Boulevard	MI.	$102,000	0.00	$ -
3	New Roadway	Lane-MI	$715,000	0.39	$ 278,850.00
4	Overlay Existing Roadway	Lane-MI	$66,000	0.00	$ -
5	Reconstruct Existing Roadway	Lane-MI	$743,000	0.00	$ -
6	Intersection Widening	EA	$46,000	0.00	$ -
7	Restriping Existing Roadway	Lane-MI.	$15,000	0.00	$ -
8	Interconnect Signal	LS	$30,000	0.00	$ -
9	New Signal	EA	$180,000	0.00	$ -
10	Signal Modifications	EA	$60,000	0.00	$ -
11	Transit Enhancements	EA	$25,000	0.00	$ -
12	Traffic Calming (See note 1)	%	-	0.0%	$ -
13	Illumination	MI.	$280,000	0.00	$ -
14	Landscaping	MI.	$225,000	0.00	$ -
15	Bridges (See note 2)	SF	$300	5,650.00	$ 1,695,000.00
16	Walls	SF	$50	15,736.00	$ 786,800.00
	SUBTOTAL				$ 2,760,650.00

	ADDITIONAL COSTS		RANGE	PERCENTAGE	COST
	Construction Surveying		1.0-2.5%	2.5%	$ 69,000.00
	TP & DT		3.0-8.0%	8.0%	$ 221,000.00
	Mobilization		8.0-10.0%	10.0%	$ 276,000.00
	Erosion Control		0.5-2.0%	2.0%	$ 55,000.00
	Contingency		40.0%	40.0%	$ 1,104,000.00
	Escalation (per year)		0.5-2.0%	0.0%	
	-Current Year			0	$ -
	TOTAL CONSTRUCTION COST				$ 4,485,650.00
	Design Engineering	13.0%	13.0%	13.0%	$ 583,000.00
	Construction Engineering	10.0%	10.0%	10.0%	$ 449,000.00
	TOTAL PROJECT COST				**$5,517,650**

CH2M HILL
SUMMARY - ORDER-OF-MAGNITUDE ESTIMATE

PROJECT:	OR22/51 Expressway Management Plan DFR-7	REFERENCE NAME/PHONE			SHEET 1 of 1
DESIGN LEVEL:	Preliminary				
KIND OF WORK:	Roadway	LENGTH (MI.):		DATE 1/8/2008	NAME J. Shamrell

NO.	ITEM	UNIT	UNIT COST	QUANTITY	COST
1	Curb, Gutter, Sidewalks & Drainage	Mi.	$543,000	0.00	$ -
2	Bike Boulevard	Mi.	$102,000	0.00	$ -
3	New Roadway	Lane-Mi.	$455,000	0.61	$ 277,641.92
4	Overlay Existing Roadway	Lane-Mi.	$66,000	3.49	$ 230,625.00
5	Reconstruct Existing Roadway	Lane-Mi.	$483,000	0.00	$ -
6	Intersection Widening	EA	$46,000	0.00	$ -
7	Restriping Existing Roadway	Lane-Mi.	$15,000	0.00	$ -
8	Interconnect Signal	LS	$30,000	0.00	$ -
9	New Signal	EA	$180,000	0.00	$ -
10	Signal Modifications	EA	$60,000	0.00	$ -
11	Transit Enhancements	EA	$25,000	0.00	$ -
12	Traffic Calming (See note 1)	%	-	0.0%	$ -
13	Illumination	Mi.	$260,000	0.00	$ -
14	Landscaping	Mi.	$225,000	0.00	$ -
15	Bridges (See note 2)	SF	$200	0.00	$ -
16	Walls	SF	$50	0.00	$ -
	SUBTOTAL				$ 508,266.92

	ADDITIONAL COSTS		RANGE	PERCENTAGE	COST
	Construction Surveying		1.0-2.5%	2.5%	$ 13,000.00
	TP & DT		3.0-8.0%	8.0%	$ 41,000.00
	Mobilization		8.0-10.0%	10.0%	$ 51,000.00
	Erosion Control		0.5-2.0%	2.0%	$ 10,000.00
	Contingency		40.0%	40.0%	$ 203,000.00
	Escalation (per year)		0.5-2.0%	0.0%	
	-Current Year			0	$ -
	TOTAL CONSTRUCTION COST				$ 826,266.92
	Design Engineering	13.0%	13.0%	13.0%	$ 107,000.00
	Construction Engineering	10.0%	10.0%	10.0%	$ 83,000.00
	TOTAL PROJECT COST				**$1,016,267**

CH2M HILL
SUMMARY - ORDER-OF-MAGNITUDE ESTIMATE

PROJECT:	OR22/51 Expressway Management Plan DFR-7 **Doaks Ferry Left Turn**	**REFERENCE NAME/PHONE**			**SHEET** 1 of 1
DESIGN LEVEL:	Preliminary				
KIND OF WORK:	Roadway	**LENGTH (MI.):**		**DATE** 1/8/2008	**NAME** J. Shamrell

NO.	ITEM	UNIT	UNIT COST	QUANTITY	COST
1	Curb, Gutter, Sidewalks & Drainage	Mi.	$543,000	0.00	$ -
2	Bike Boulevard	Mi.	$102,000	0.00	$ -
3	New Roadway	Lane-Mi.	$455,000	0.32	$ 143,370.96
4	Overlay Existing Roadway	Lane-Mi.	$66,000	1.75	$ 115,312.50
5	Reconstruct Existing Roadway	Lane-Mi.	$483,000	0.00	$ -
6	Intersection Widening	EA	$46,000	0.00	$ -
7	Restriping Existing Roadway	Lane-Mi.	$15,000	0.00	$ -
8	Interconnect Signal	LS	$30,000	0.00	$ -
9	New Signal	EA	$180,000	0.00	$ -
10	Signal Modifications	EA	$60,000	0.00	$ -
11	Transit Enhancements	EA	$25,000	0.00	$ -
12	Traffic Calming (See note 1)	%	-	0.0%	$ -
13	Illumination	Mi.	$260,000	0.00	$ -
14	Landscaping	Mi.	$225,000	0.00	$ -
15	Bridges (See note 2)	SF	$200	0.00	$ -
16	Walls	SF	$50	0.00	$ -
	SUBTOTAL				$ 258,683.46

	ADDITIONAL COSTS		RANGE	PERCENTAGE	COST
	Construction Surveying		1.0-2.5%	2.5%	$ 6,000.00
	TP & DT		3.0-8.0%	8.0%	$ 21,000.00
	Mobilization		8.0-10.0%	10.0%	$ 26,000.00
	Erosion Control		0.5-2.0%	2.0%	$ 5,000.00
	Contingency		40.0%	40.0%	$ 103,000.00
	Escalation (per year)		0.5-2.0%	0.0%	
	-Current Year			0	$ -
	TOTAL CONSTRUCTION COST				$ 419,683.46
	Design Engineering	13.0%	13.0%	13.0%	$ 55,000.00
	Construction Engineering	10.0%	10.0%	10.0%	$ 42,000.00
	TOTAL PROJECT COST				**$516,683**

CH2M HILL
SUMMARY - ORDER-OF-MAGNITUDE ESTIMATE

PROJECT:	OR22/51 Expressway Management Plan DFR-7 **Weigh Station U-Turn**	**REFERENCE NAME/PHONE**			**SHEET** 1 of 1
DESIGN LEVEL:	Preliminary				
KIND OF WORK:	Roadway	**LENGTH (MI.):**		**DATE** 1/8/2008	**NAME** J. Shamrell

NO.	ITEM	UNIT	UNIT COST	QUANTITY	COST
1	Curb, Gutter, Sidewalks & Drainage	Mi.	$543,000	0.00	$ -
2	Bike Boulevard	Mi.	$102,000	0.00	$ -
3	New Roadway	Lane-Mi.	$455,000	0.30	$ 134,270.96
4	Overlay Existing Roadway	Lane-Mi.	$66,000	1.75	$ 115,312.50
5	Reconstruct Existing Roadway	Lane-Mi.	$483,000	0.00	$ -
6	Intersection Widening	EA	$46,000	0.00	$ -
7	Restriping Existing Roadway	Lane-Mi.	$15,000	0.00	$ -
8	Interconnect Signal	LS	$30,000	0.00	$ -
9	New Signal	EA	$180,000	0.00	$ -
10	Signal Modifications	EA	$60,000	0.00	$ -
11	Transit Enhancements	EA	$25,000	0.00	$ -
12	Traffic Calming (See note 1)	%	-	0.0%	$ -
13	Illumination	Mi.	$260,000	0.00	$ -
14	Landscaping	Mi.	$225,000	0.00	$ -
15	Bridges (See note 2)	SF	$200	0.00	$ -
16	Walls	SF	$50	0.00	$ -
	SUBTOTAL				$ 249,583.46

	ADDITIONAL COSTS		RANGE	PERCENTAGE	COST
	Construction Surveying		1.0-2.5%	2.5%	$ 6,000.00
	TP & DT		3.0-8.0%	8.0%	$ 20,000.00
	Mobilization		8.0-10.0%	10.0%	$ 25,000.00
	Erosion Control		0.5-2.0%	2.0%	$ 5,000.00
	Contingency		40.0%	40.0%	$ 100,000.00
	Escalation (per year)		0.5-2.0%	0.0%	
	-Current Year			0	$ -
	TOTAL CONSTRUCTION COST				$ 405,583.46
	Design Engineering	13.0%	13.0%	13.0%	$ 53,000.00
	Construction Engineering	10.0%	10.0%	10.0%	$ 41,000.00
	TOTAL PROJECT COST				**$499,583**

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OREGON DEPARTMENT OF TRANSPORTATION
HAZARD ELIMINATION PROGRAM
BENEFIT/COST ANALYSIS WORKSHEET

Project Name: **DFR 2** Region: **2** Date: **6/3/07**

Project on State Highway

Route Number: **22** Hwy Name: **WILLAMINA-SALEM** MP From: **MP 21.94** to **MP 22.14**

Road Character: **RURAL** Facility Type: **OTHER HIGHWAY**

County: **POLK** City: **Salem** Crash Data From: **6/1/1999** to **7/31/2004**

Project Description: **Connection to north backage road, deceleration lane, and center turn refuge for left-in at Riggs Street with painted island channel**

Prepared By: **Haregu Nemariam** Title: **Transportation Engineer**

Type of Target Crashes	Total Crashes & Countermeasure 10 No.	Number of Target Crashes			Number of Freeways Crashes	Economic Value per Crash		Total Economic Value
PDO Crashes	14	<==Total PDO Crashes			7.8	$13,000	=	$ 102,000
	10 No.				Type of Crash Prevention			
Countermeasure 1 Concrete Median Barrier (3-6 Sky)	1.0		-10%	3.9	All Crash Types			
Countermeasure 2 Spacing 600-1000 feet	20.0		60%	3.9	All Crash Types			
Countermeasure 3	No		0%	0.0				
Countermeasure 4	No		0%	0.0				
Countermeasure 5	No		0%	0.0				
Moderate (Injury B) and Minor (Injury C) Injury Crashes	13	<==Total Injury B&C Crashes			8.3	$55,000	=	$ 468,000
	10 No.				Type of Crash Prevention			
Countermeasure 1 Concrete Median Barrier (3-6 Sky)	1.0		10%	4.2	All Crash Types			
Countermeasure 2 Spacing 600-1000 feet	20.0		60%	4.2	All Crash Types			
Countermeasure 3	No		0%	0.0				
Countermeasure 4	No		0%	0.0				
Countermeasure 5	No		0%	0.0				
Fatal and Severe (Injury A) Injury Crashes		<==Total Fatal & InjA Crashes			0.0	$1,358,000	=	$
	10 No.				Type of Crash Prevention			
Countermeasure 1	No		0%	0.0				
Countermeasure 2	No		0%	0.0				
Countermeasure 3	No		0%	0.0				
Countermeasure 4	No		0%	0.0				
Countermeasure 5	No		0%	0.0				

Comprehensive Economic Value per Crash		
Highway/Street Type	Urban	Rural
PDO [1]		
All facilities	$13,000	$13,000
Moderate (Injury B) and Minor (Injury C) Injury [2]		
Interstate or Freeway	$39,000	$51,000
Other State Highway	$41,000	$53,000
Fatal and Severe (Injury A) Injury [3]		
Interstate or Freeway	$694,000	$1,352,000
Other Highway	$689,000	$1,359,000

27 <==**Crashes** **Total Crash Value for** 88 Months = $ 580,000

Annual Benefits = Total Crash Value / Total Months / 12 = $ 112,000

Estimated Project Cost = $ 1,215,000

B/C Ratio = Annual Benefits X Present Worth Factor (10 or 20 years) / Estimated Project Cost

Uniform Series Present Worth Factor (4%)	
10 years	20 years
8.11	13.59

B/C Ratio = $ 112,000 x 13.59 / $ 1,215,000 = **1.25**

Notes

1. Composite crash reduction factor calculated if more than one countermeasure is applied.
2. Select a PWF for the life of countermeasure. See instructions.
3. PDO value is $6,500 per crash adjusted with an under reporting factor of 2.0. National Safety Council, 2000 estimates of value per crash.
4. Economic costs per crash are calculated using 1998-2000 Oregon crash data and FHWA's Technical Advisory "Motor Vehicle Accident Costs, T 7570.2, October 31, 1994 updated to 2001 dollars with GDP implicit price deflator.

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OREGON DEPARTMENT OF TRANSPORTATION
HAZARD ELIMINATION PROGRAM
BENEFIT/COST ANALYSIS WORKSHEET

Project Name: DFR 4 | Region: 2 | Date: 6/2/07

Project on State Highway

Route Number: 22 | Hwy Name: WILLAMINA-SALEM | MP From: 21.94 to 22.14

Road Character: RURAL | Facility Type: OTHER HIGHWAY

County: MORROW | City: Salem | Crash Data From: 8/1/1999 to 7/31/2004

Project Description: New roadway and undercrossing at Spring Street connecting north and south side backage roads.

Prepared By: Haregu Nemariam | Title: Transportation Engineer

Type of Target Crashes	Total Crashes & Countermeasure (0 No)	Number of Target Crashes				A Number of Prevention Crashes	B Economic Value per Crash		C Total Economic Value
PDO Crashes	14	<—Total PDO Crashes				[1] 9.4	$13,000	=	$ 122,000
	(0 No)					Type of Crash Prevented			
Countermeasure 1 Concrete Median Barrier (3-8' Shy)	1.0		-10%	4.7		All Crash Types			
Countermeasure 2 Left-Turn Bay, Unsignalized, 4-Leg, Curbed/Raised	7.0		70%	4.7		All Crash Types			
Countermeasure 3	No		0%	0.0					
Countermeasure 4	No		0%	0.0					
Countermeasure 5	No		0%	0.0					
Moderate (Injury B) and Minor (Injury C) Injury Crashes	13	<—Total Injury B&C Crashes				[1] 10.7	$56,000	=	$ 596,000
	(0 No)					Type of Crash Prevented			
Countermeasure 1 Concrete Median Barrier (3-8' Shy)	1.0		10%	5.3		All Crash Types			
Countermeasure 2 Left-Turn Bay, Unsignalized, 1 Intersection	9.0		80%	5.3		All Crash Types			
Countermeasure 3	No		0%	0.0					
Countermeasure 4	No		0%	0.0					
Countermeasure 5	No		0%	0.0					
Fatal and Severe (Injury A) Injury Crashes		<—Total Fatal & InjA Crashes				[1] 0.0	$1,569,000	=	$
	(0 No)					Type of Crash Prevented			
Countermeasure 1	No		0%	0.0					
Countermeasure 2	No		0%	0.0					
Countermeasure 3	No		0%	0.0					
Countermeasure 4	No		0%	0.0					
Countermeasure 5	No		0%	0.0					

27 <—Crashes | Total Crash Value for 60 Months = $ 708,000

Comprehensive Economic Value per Crash		
Highway/Street Type	Urban	Rural
PDO [3]		
All facilities	$13,000	$13,000
Moderate (Injury B) and Minor (Injury C) Injury [4]		
Interstate or Freeway	$39,000	$51,000
Other State Highway	$41,000	$55,000
Fatal and Severe (Injury A) Injury [4]		
Interstate or Freeway	$584,000	$1,352,000
Other Highway	$569,000	$1,359,000

Annual Benefits = Total Crash Value / Total Months / 12 = $ 142,000

Estimated Project Cost = $ 5,518,000

B/C Ratio = Annual Benefits x Present Worth Factor (10 or 20 years) / Estimated Project Cost

B/C Ratio = $ 142,000 x [1] 13.59 / $ 5,518,000 = 0.35

Uniform Series Present Worth Factor (4%)	
10 years	20 years
8.11	13.59

Notes

1. Composite crash reduction factor calculated if more than one countermeasure is applied.
2. Select a PWF for the life of countermeasure. See instructions.
3. PDO value is $8,300 per crash adjusted with an under reporting factor of 2.0. National Safety Council, 2000 estimates of value per crash.
4. Economic costs per crash are calculated using 1998-2000 Oregon crash data and FHWA's Technical Advisory "Motor Vehicle Accident Costs," 7-7570.2, October 31, 1994 updated to 2001 dollars with GDP implicit price deflator.

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OREGON DEPARTMENT OF TRANSPORTATION
HAZARD ELIMINATION PROGRAM
BENEFIT/COST ANALYSIS WORKSHEET

Project Name: **DFR 7** Region: **2** Date: **6/2/07**

Project on State Highway

Route Number: **22** Hwy Name: **WILLAMINA-SALEM** MP From: **21.94** to: **22.14**

Road Character: **RURAL** Facility Type: **OTHER HIGHWAY**

County: **MORROW** City: **Salem** Crash Data From: **8/1/1999** to: **7/31/2004**

Project Description: **Realigned right-out connection, painted island, center turn refuge for left-in at DFR; WB center turn refuge and U-turn lane at well**

Prepared By: **Baregu Nemariam** Title: **Transportation Engineer**

Type of Target Crashes	Total Crashes & Countermeasure (#)	Number of Target Crashes			Number of Preventable Crashes	Economic Value per Crash		Total Economic Value
PDO Crashes	14 (#)	==Total PDO Crashes			9.4 (Type of Crash Prevention)	$13,000	=	$ 122,000
Countermeasure 1: Concrete Median Barrier (3-6' Sky)	1.0		10%	4.7	All Crash Types			
Countermeasure 2: Left-Turn Bay, Unsignalized, 4-Leg, Curbed/Raised	7.0		70%	4.7	All Crash Types			
Countermeasure 3	No		0%	0.0				
Countermeasure 4	No		0%	0.0				
Countermeasure 5	No		0%	0.0				
Moderate (Injury B) and Minor (Injury C) Injury Crashes	13 (#)	==Total Injury B&C Crashes			10.7 (Type of Crash Prevention)	$55,000	=	$ 586,000
Countermeasure 1: Concrete Median Barrier (3-6' Sky)	1.0		10%	5.3	All Crash Types			
Countermeasure 2: Left-Turn Bay, Unsignalized, T-Intersection	9.0		80%	5.3	All Crash Types			
Countermeasure 3	No		0%	0.0				
Countermeasure 4	No		0%	0.0				
Countermeasure 5	No		0%	0.0				
Fatal and Severe (Injury A) Injury Crashes	(#)	==Total Fatal & InjA Crashes			0.0 (Type of Crash Prevention)	$1,359,000	=	$
Countermeasure 1	No		0%	0.0				
Countermeasure 2	No		0%	0.0				
Countermeasure 3	No		0%	0.0				
Countermeasure 4	No		0%	0.0				
Countermeasure 5	No		0%	0.0				

Comprehensive Economic Value per Crash		
Highway/Street Type	Urban	Rural
PDO [1]		
All facilities	$10,000	$13,000
Moderate (Injury B) and Minor (Injury C) Injury [2]		
Interstate or Freeway	$39,000	$51,000
Other State Highway	$41,000	$53,000
Fatal and Severe (Injury A) Injury [3]		
Interstate or Freeway	$594,000	$1,352,000
Other Highway	$689,000	$1,359,000

27 <==Crashes **Total Crash Value for** 60 Months = $ 708,000

Annual Benefits = Total Crash Value / Total Months / 12 = $ 142,000

Estimated Project Cost = $ 1,016,000

B/C Ratio = Annual Benefits X Present Worth Factor (10 or 20 years) / Estimated Project Cost

Uniform Series Present Worth Factor (4%)	
10 years	20 years
8.11	13.59

B/C Ratio = $ 142,000 x 8.11 / $ 1,016,000 = **1.13**

Notes

1. Composite crash reduction factor calculated if more than one countermeasure is applied.
2. Select a PWF for the life of countermeasure. See instructions.
3. PDO value is $6,500 per crash adjusted with an under reporting factor of 2.0. National Safety Council, 2000 estimates of value per crash.
4. Economic costs per crash are calculated using 1998-2000 Oregon crash data and FHWA's Technical Advisory "Motor Vehicle Accident Costs, T 7570.2, October 31, 1994 updated to 2001 dollars with GDP implicit price deflator.

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OREGON DEPARTMENT OF TRANSPORTATION
HAZARD ELIMINATION PROGRAM
BENEFIT/COST ANALYSIS WORKSHEET

Project Name: **DFR 7 (U-Turn Only)** Region: **2** Date: **6/2/07**

Project on State Highway

Route Number: **22** Hwy Name: **WILLAMINA-SALEM** MP From: **21.94** to **22.14**

Road Character: **RURAL** Facility Type: **OTHER HIGHWAY**

County: **MORROW** City: **Salem** Crash Data From: **8/1/1999** to **7/31/2004**

Project Description: **WB center turn refuge and U-turn lane at weigh station.**

Prepared By: **Haregu Nemariam** Title: **Transportation Engineer**

Type of Target Crashes		Total Crashes & Countermeasure ID No.	Number of Target Crashes			A Number of Preventable Crashes	B Economic Value per Crash		A*B Total Economic Value
PDO Crashes		14	<==Total PDO Crashes			[1] 9.4	$13,000	=	$ 122,000
		ID No.				Type of Crash Prevented			
Countermeasure 1	Concrete Median Barrier (3-6' Shy)	1.0		-10%	4.7	All Crash Types			
Countermeasure 2	Left-Turn Bay, Unsignalized, 4-Leg, Curbed/Raised	7.0		70%	4.7	All Crash Types			
Countermeasure 3		No.		0%	0.0				
Countermeasure 4		No.		0%	0.0				
Countermeasure 5		No.		0%	0.0				
Moderate (Injury B) and Minor (Injury C) Injury Crashes		13	<==Total Injury B&C Crashes			[1] 10.7	$55,000	=	$ 586,000
		ID No.				Type of Crash Prevented			
Countermeasure 1	Concrete Median Barrier (3-6' Shy)	1.0		10%	5.3	All Crash Types			
Countermeasure 2	Left-Turn Bay, Unsignalized, T-Intersection	9.0		80%	5.3	All Crash Types			
Countermeasure 3		No.		0%	0.0				
Countermeasure 4		No.		0%	0.0				
Countermeasure 5		No.		0%	0.0				
Fatal and Severe (Injury A) Injury Crashes			<==Total Fatal & InjA Crashes			[1] 0.0	$1,359,000	=	$ -
		ID No.				Type of Crash Prevented			
Countermeasure 1		No.		0%	0.0				
Countermeasure 2		No.		0%	0.0				
Countermeasure 3		No.		0%	0.0				
Countermeasure 4		No.		0%	0.0				
Countermeasure 5		No.		0%	0.0				

Comprehensive Economic Value per Crash		
Highway/Street Type	Urban	Rural
PDO [3]		
All facilities	$13,000	$13,000
Moderate (Injury B) and Minor (Injury C) Injury [4]		
Interstate or Freeway	$39,000	$51,000
Other State Highway	$41,000	$55,000
Fatal and Severe (Injury A) Injury [4]		
Interstate or Freeway	$694,000	$1,352,000
Other Highway	$689,000	$1,359,000

27 <==Crashes **Total Crash Value for** 60 Months = $ 708,000

Annual Benefits = Total Crash Value / Total Months / 12 = $ 142,000

Estimated Project Cost = $ 500,000

B/C Ratio = Annual Benefits X Present Worth Factor (10 or 20 years) / Estimated Project Cost

B/C Ratio = $ 142,000 x [2] 8.11 / $ 500,000 = **2.30**

Uniform Series Present Worth Factor (4%)	
10 years	20 years
8.11	13.59

Notes

1 Composite crash reduction factor calculated if more than one countermeasure is applied

2 Select a PWF for the life of countermeasure. See instructions

3 PDO value is $6,500 per crash adjusted with an under reporting factor of 2.0. National Safety Council, 2000 estimates of value per crash.

4 Economic costs per crash are calculated using 1998-2000 Oregon crash data and FHWA's Technical Advisory "Motor Vehicle Accident Costs, T 7570.2, October 31, 1994 updated to 2001 dollars with GDP implicit price deflator.

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OREGON DEPARTMENT OF TRANSPORTATION
HAZARD ELIMINATION PROGRAM
BENEFIT/COST ANALYSIS WORKSHEET

Project Name: **DFR 7 (Doaks Ferry Left Turn Only)** Region: **2** Date: **6/2/07**

Project on State Highway

Route Number: **22** Hwy Name: **WILLAMINA-SALEM** MP From: **21.94** to **22.14**

Road Character: **RURAL** Facility Type: **OTHER HIGHWAY**

County: **MORROW** City: **Salem** Crash Data From: **8/1/1999** to **7/31/2004**

Project Description: **Realigned right-out connection, painted island, center turn refuge for left-in at DFR**

Prepared By: **Haregu Nemariam** Title: **Transportation Engineer**

Type of Target Crashes		Total Crashes & Countermeasure ID No.	Number of Target Crashes			A Number of Preventable Crashes	B Economic Value per Crash		A*B Total Economic Value
PDO Crashes		14	<==Total PDO Crashes			[1] 9.4	$13,000	=	$ 122,000
		ID No.				Type of Crash Prevented			
Countermeasure 1	Concrete Median Barrier (3-6' Shy)	1.0		-10%	4.7	All Crash Types			
Countermeasure 2	Left-Turn Bay, Unsignalized, 4-Leg, Curbed/Raised	7.0		70%	4.7	All Crash Types			
Countermeasure 3		No.		0%	0.0				
Countermeasure 4		No.		0%	0.0				
Countermeasure 5		No.		0%	0.0				
Moderate (Injury B) and Minor (Injury C) Injury Crashes		13	<==Total Injury B&C Crashes			[1] 10.7	$55,000	=	$ 586,000
		ID No.				Type of Crash Prevented			
Countermeasure 1	Concrete Median Barrier (3-6' Shy)	1.0		10%	5.3	All Crash Types			
Countermeasure 2	Left-Turn Bay, Unsignalized, T-Intersection	9.0		80%	5.3	All Crash Types			
Countermeasure 3		No.		0%	0.0				
Countermeasure 4		No.		0%	0.0				
Countermeasure 5		No.		0%	0.0				
Fatal and Severe (Injury A) Injury Crashes			<==Total Fatal & InjA Crashes			[1] 0.0	$1,359,000	=	$ -
		ID No.				Type of Crash Prevented			
Countermeasure 1		No.		0%	0.0				
Countermeasure 2		No.		0%	0.0				
Countermeasure 3		No.		0%	0.0				
Countermeasure 4		No.		0%	0.0				
Countermeasure 5		No.		0%	0.0				

Comprehensive Economic Value per Crash		
Highway/Street Type	Urban	Rural
PDO [3]		
All facilities	$13,000	$13,000
Moderate (Injury B) and Minor (Injury C) Injury [4]		
Interstate or Freeway	$39,000	$51,000
Other State Highway	$41,000	$55,000
Fatal and Severe (Injury A) Injury [4]		
Interstate or Freeway	$694,000	$1,352,000
Other Highway	$689,000	$1,359,000

27 <==**Crashes** **Total Crash Value for** 60 Months = $ 708,000

Annual Benefits = Total Crash Value / Total Months / 12 = $ 142,000

Estimated Project Cost = $ 517,000

B/C Ratio = Annual Benefits X Present Worth Factor (10 or 20 years) / Estimated Project Cost

Uniform Series Present Worth Factor (4%)	
10 years	20 years
8.11	13.59

B/C Ratio = $ 142,000 x [2] 8.11 / $ 517,000 = **2.23**

Notes

1 Composite crash reduction factor calculated if more than one countermeasure is applied

2 Select a PWF for the life of countermeasure. See instructions

3 PDO value is $6,500 per crash adjusted with an under reporting factor of 2.0. National Safety Council, 2000 estimates of value per crash.

4 Economic costs per crash are calculated using 1998-2000 Oregon crash data and FHWA's Technical Advisory "Motor Vehicle Accident Costs, T 7570.2, October 31, 1994 updated to 2001 dollars with GDP implicit price deflator.

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OREGON DEPARTMENT OF TRANSPORTATION
HAZARD ELIMINATION PROGRAM
BENEFIT/COST ANALYSIS WORKSHEET

Project Name: GWR 3 Install Raised Median (GWR Right In/Out) | Region: 2 | Date: 6/2/07

Project on State Highway

Route Number: 22 | Hwy Name: WILLAMINA-SALEM | MP From: MP 18.41 | to: MP 18.82

Road Character: RURAL | Facility Type: OTHER HIGHWAY

County: POLK | City: OUT SIDE SALEM UBG | Crash Data From: 8/1/1998 | to: 7/31/2004

Project Description: Install raised median and make Greenwood Road right in/out

Prepared By: Haregu Nemariam | Title: Transportation Engineer

Type of Target Crashes	Countermeasure ID No.	Number of Target Crashes			# Number of Preventable Crashes	## Economic Value per Crash		### Total Economic Value
PDO Crashes			<---Total PDO Crashes		0.0 (Type of Crash Prevented)	$13,000	=	$
Countermeasure 1	No		0%	0.0				
Countermeasure 2	No		0%	0.0				
Countermeasure 3	No		0%	0.0				
Countermeasure 4	No		0%	0.0				
Countermeasure 5	No		0%	0.0				
Moderate (Injury B) and Minor (Injury C) Injury Crashes		4	<---Total Injury B&C Crashes		0.4 (Type of Crash Prevented)	$55,000	=	$ 22,000
Countermeasure 1 (Install Median Fence (3-5' Ht))		1.0	10%	0.4	All Crash Types			
Countermeasure 2	No		0%	0.0				
Countermeasure 3	No		0%	0.0				
Countermeasure 4	No		0%	0.0				
Countermeasure 5	No		0%	0.0				
Fatal and Severe (Injury A) Injury Crashes			<---Total Fatal & InjA Crashes		0.0 (Type of Crash Prevented)	$1,358,000	=	$ -
Countermeasure 1	No		0%	0.0				
Countermeasure 2	No		0%	0.0				
Countermeasure 3	No		0%	0.0				
Countermeasure 4	No		0%	0.0				
Countermeasure 5	No		0%	0.0				

Comprehensive Economic Value per Crash		
Highway/Street Type	Urban	Rural
PDO #		
All facilities	$13,000	$13,000
Moderate (Injury B) and Minor (Injury C) Injury *		
Interstate or Freeway	$39,000	$57,000
Other State Highway	$41,000	$55,000
Fatal and Severe (Injury A) Injury *		
Interstate or Freeway	$684,000	$1,352,000
Other Highway	$689,000	$1,358,000

4 <---Crashes **Total Crash Value for** 83 Months = $ 22,000

Annual Benefits = Total Crash Value / Total Months / 12 = $ 4,000

Estimated Project Cost = **$ 40,000**

B/C Ratio = Annual Benefits X Present Worth Factor (10 or 20 years) / Estimated Project Cost

B/C Ratio = $ 4,000 x 13.59 / $ 40,000 = **1.36**

Uniform Series Present Worth Factor (4%)	
10 years	20 years
8.11	13.59

Notes

1. Composite crash reduction factor calculated if more than one countermeasure is applied
2. Select a PWF for the life of countermeasure. See instructions
3. PDO value is $6,500 per crash adjusted with an under reporting factor of 2.0. National Safety Council, 2000 estimates of value per crash
4. Economic costs per crash are calculated using 1998-2000 Oregon crash data and FHWA's Technical Advisory Motor Vehicle Accident Costs, T 7570.2, October 31, 1994 updated to 2001 dollars with GDP implicit price deflator

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OREGON DEPARTMENT OF TRANSPORTATION
HAZARD ELIMINATION PROGRAM
BENEFIT/COST ANALYSIS WORKSHEET

Project Name: **GWR 4a** Region: **2** Date: **6/2/07**

Project on State Highway

Route Number: **22** Hwy Name: **WILLAMINA-SALEM** MP From: **MP 18.41** to **MP 18.62**

Road Character: **RURAL** Facility Type: **OTHER HIGHWAY**

County: **POLK** City: **OUT SIDE SALEM UBG** Crash Data From: **8/1/1999** to **7/31/2004**

Project Description: **Grade Separate with westbound right in/out access to OR 22 overpass**

Prepared By: **Haregu Nemariam** Title: **Transportation Engineer**

Type of Target Crashes	Total Counts of Countermeasure (0 No)	Number of Target Crashes			Number of Recordable Crashes	Economic Value per Crash		Total Economic Value
PDO Crashes		<=Total PDO Crashes			0.0	$13,000	=	$ -
	(0 No)				Type of Crash Prevented			
Countermeasure 1	No		0%	0.0				
Countermeasure 2	No		0%	0.0				
Countermeasure 3	No		0%	0.0				
Countermeasure 4	No		0%	0.0				
Countermeasure 5	No		0%	0.0				
Moderate (Injury B) and Minor (Injury C) Injury Crashes	4	<=Total Injury B&C Crashes			3.1	$55,000	=	$ 171,000
	(0 No)				Type of Crash Prevented			
Countermeasure 1 Corridor Median Barrier (3d Sty)	1.0		10%	1.6	All Crash Types			
Countermeasure 2 Construct Grade Separation	37.0		75%	1.6	All Crash Types			
Countermeasure 3	No		0%	0.0				
Countermeasure 4	No		0%	0.0				
Countermeasure 5	No		0%	0.0				
Fatal and Severe (Injury A) Injury Crashes		<=Total Fatal & InjA Crashes			0.0	$1,359,000	=	$ -
	(0 No)				Type of Crash Prevented			
Countermeasure 1	No		0%	0.0				
Countermeasure 2	No		0%	0.0				
Countermeasure 3	No		0%	0.0				
Countermeasure 4	No		0%	0.0				
Countermeasure 5	No		0%	0.0				

Comprehensive Economic Value per Crash		
Highway/Street Type	Urban	Rural
PDO [3]		
All facilities	$13,000	$13,000
Moderate (Injury B) and Minor (Injury C) Injury [4]		
Interstate or Freeway	$39,000	$51,000
Other State Highway	$41,000	$50,000
Fatal and Severe (Injury A) Injury [4]		
Interstate or Freeway	$694,000	$1,352,000
Other Highway	$669,000	$1,359,000

4 <==Crashes **Total Crash Value for** 68 Months = $ 171,000

Annual Benefits = Total Crash Value / Total Months / 12 = $ 34,000

Estimated Project Cost = $ 5,880,000

B/C Ratio = Annual Benefits X Present Worth Factor (10 or 20 years) / Estimated Project Cost

Uniform Series Present Worth Factor (4%)	
10 years	20 years
8.11	13.59

B/C Ratio = $ 34,000 x 13.59 / $ 5,880,000 = **0.08**

Notes

1. Composite crash reduction factor calculated if more than one countermeasure is applied.
2. Select a PWF for the life of countermeasure. See instructions.
3. PDO value is $6,500 per crash adjusted with an under reporting factor of 2.0. National Safety Council, 2000 estimates of value per crash.
4. Economic costs per crash are calculated using 1998-2000 Oregon crash data and FHWA's Technical Advisory "Motor Vehicle Accident Costs, T 7570.2, October 31, 1994 updated to 2001 dollars with GDP implicit price deflator.

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OREGON DEPARTMENT OF TRANSPORTATION
HAZARD ELIMINATION PROGRAM
BENEFIT/COST ANALYSIS WORKSHEET

Project Name: GWR 4b | Region: 2 | Date: 6/2/07

Project on State Highway

Route Number: 22 | Hwy Name: WILLAMINA-SALEM | MP From: MP 18.41 | to: MP 18.62

Road Character: RURAL | Facility Type: OTHER HIGHWAY

County: POLK | City: OUT SIDE SALEM UBG | Crash Data From: 8/1/1999 | to: 7/31/2004

Project Description: Grade Separate to allow north to south access without OR 22 access - overpass

Prepared By: Haregu Nemariam | Title: Transportation Engineer

Type of Target Crashes	Total Crashes Countermeasure Is for	Number of Target Crashes			Number of Preventable Crashes	Economic Value per Crash		Total Economic Value
					A	B		C
PDO Crashes		<==Total PDO Crashes			0.0	$13,000	=	$ -
	ID No.				Type of Crash Prevented			
Countermeasure 1	No		0%	0.0				
Countermeasure 2	No		0%	0.0				
Countermeasure 3	No		0%	0.0				
Countermeasure 4	No		0%	0.0				
Countermeasure 5	No		0%	0.0				
Moderate (Injury B) and Minor (Injury C) Injury Crashes	4	<==Total Injury B&C Crashes			0.1	$56,000	=	$ 171,000
	ID No.				Type of Crash Prevented			
Countermeasure 1 Centerline Median Barrier (3-6' Sty)	1.0		10%	1.6	All Crash Types			
Countermeasure 2 Centerline Grade Separation	37.0		75%	1.6	All Crash Types			
Countermeasure 3	No		0%	0.0				
Countermeasure 4	No		0%	0.0				
Countermeasure 5	No		0%	0.0				
Fatal and Severe (Injury A) Injury Crashes		<==Total Fatal & InjA Crashes			0.0	$1,359,000	=	$ -
	ID No.				Type of Crash Prevented			
Countermeasure 1	No		0%	0.0				
Countermeasure 2	No		0%	0.0				
Countermeasure 3	No		0%	0.0				
Countermeasure 4	No		0%	0.0				
Countermeasure 5	No		0%	0.0				

Comprehensive Economic Value per Crash		
Highway Street Type	Urban	Rural
PDO [3]		
All facilities	$13,000	$13,000
Moderate (Injury B) and Minor (Injury C) Injury [4]		
Interstate or Freeway	$39,000	$51,000
Other State Highway	$41,000	$55,000
Fatal and Severe (Injury A) Injury [4]		
Interstate or Freeway	$694,000	$1,362,000
Other Highway	$689,000	$1,359,000

4 <==Crashes **Total Crash Value for** 60 Months = $ 171,000

Annual Benefits = Total Crash Value / Total Months / 12 = $ 34,000

Estimated Project Cost = **$ 5,856,000**

B/C Ratio = Annual Benefits X Present Worth Factor (10 or 20 years) / Estimated Project Cost

B/C Ratio = $ 34,000 x 13.59 / $ 5,856,000 = **0.08**

Uniform Series Present Worth Factor (4%)	
10 years	20 years
8.11	13.59

Notes

1. Composite crash reduction factor calculated if more than one countermeasure is applied.
2. Select a PWF for the life of countermeasure. See instructions.
3. PDO value is $8,500 per crash adjusted with an under reporting factor of 3.0. National Safety Council, 2002 estimates of value per crash.
4. Economic costs per crash are calculated using 1998-2000 Oregon crash data and FHWA's Technical Advisory "Motor Vehicle Accident Costs, T 7570.2, October 31, 1994 updated to 2001 dollars with GDP implicit price deflator.

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OREGON DEPARTMENT OF TRANSPORTATION
HAZARD ELIMINATION PROGRAM
BENEFIT/COST ANALYSIS WORKSHEET

Project Name: **GWR 6 Offset Dual T Intersections** Region: **2** Date: **6/2/07**

Project on State Highway

Route Number: **22** Hwy Name: **WILLAMINA-SALEM** MP From: **MP 18.41** to **MP 18.62**

Road Character: **RURAL** Facility Type: **OTHER HIGHWAY**

County: **POLK** City: **OUT SIDE SALEM UBG** Crash Data From: **8/1/1999** to **7/31/2004**

Project Description: **Install extra wide (16 ft) dual direction center turn lane between south Greenwood Rd and north frontage road; install decel lanes**

Prepared By: **Harego Nemariam** Title: **Transportation Engineer**

Type of Target Crashes	Total Crashes to Countermeasure (0 No)	Number of Target Crashes			Number of Preventable Crashes	Economic Value per Crash		Total Economic Value
PDO Crashes	(0 No)	<---Total PDO Crashes			0.0	$13,000	=	$
					Type of Crash Prevented			
Countermeasure 1	No		0%	0.0				
Countermeasure 2	No		0%	0.0				
Countermeasure 3	No		0%	0.0				
Countermeasure 4	No		0%	0.0				
Countermeasure 5	No		0%	0.0				
Moderate (Injury B) and Minor (Injury C) Injury Crashes	4	<---Total Injury B&C Crashes			3.1	$55,000	=	$ 171,000
	(0 No)				Type of Crash Prevented			
Countermeasure 1 Centerline Median Barrier (3.0 Bhy)	1.0		10%	1.6	All Crash Types			
Countermeasure 2 Centerline Grade Separation	37.0		75%	1.6	All Crash Types			
Countermeasure 3	No		0%	0.0				
Countermeasure 4	No		0%	0.0				
Countermeasure 5	No		0%	0.0				
Fatal and Severe (Injury A) Injury Crashes		<---Total Fatal & Inj A Crashes			0.0	$1,350,000	=	$
	(0 No)				Type of Crash Prevented			
Countermeasure 1	No		0%	0.0				
Countermeasure 2	No		0%	0.0				
Countermeasure 3	No		0%	0.0				
Countermeasure 4	No		0%	0.0				
Countermeasure 5	No		0%	0.0				

Comprehensive Economic Value per Crash		
Highway/Street Type	Urban	Rural
PDO [3]		
All facilities	$13,000	$13,000
Moderate (Injury B) and Minor (Injury C) Injury [4]		
Interstate or Freeway	$38,000	$51,000
Other State Highway	$41,000	$55,000
Fatal and Severe (Injury A) Injury [4]		
Interstate or Freeway	$584,000	$1,352,000
Other Highway	$669,000	$1,350,000

4 <---Crashes **Total Crash Value for** 60 Months = $ 171,000

Annual Benefits = Total Crash Value / Total Months / 12 = $ 34,000

Estimated Project Cost = $ 1,584,000

B/C Ratio = Annual Benefits X Present Worth Factor (10 or 20 years) / Estimated Project Cost

Uniform Series Present Worth Factor (4%)	
10 years	20 years
8.11	13.59

B/C Ratio = $ 34,000 x 13.59 / $ 1,584,000 = **0.29**

Notes

1. Composite crash reduction factor calculated if more than one countermeasure is applied.
2. Select a PWF for the life of countermeasure. See instructions.
3. PDO value is $5,000 per crash adjusted with an under reporting factor of 2.0. National Safety Council, 2000 estimates of value per crash.
4. Economic costs per crash are calculated using 1990-2000 Oregon crash data and FHWA's Technical Advisory "Motor Vehicle Accident Costs," T 7570.2, October 31, 1994 updated to 2001 dollars with GDP implicit price deflator.

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OREGON DEPARTMENT OF TRANSPORTATION
HAZARD ELIMINATION PROGRAM
BENEFIT/COST ANALYSIS WORKSHEET

Project Name: INH 3 | Region: 2 | Date: 6/2/07

Project on State Highway

Route Number: 22 | Hwy Name: WILLAMINA-SALEM | MP From: MP 20.27 to MP 20.81

Road Character: RURAL | Facility Type: OTHER HIGHWAY

County: POLK | City: OUT SIDE SALEM UBG | Crash Data From: 8/1/1999 to 7/31/2004

Project Description: Standard diamond interchange

Prepared By: Haregu Nemariam | Title: Transportation Engineer

Type of Target Crashes	Total Crashes & Countermeasure ID No.	Number of Target Crashes			A Number of Preventable Crashes	B Economic Value per Crash		AB Total Economic Value
PDO Crashes	14 (ID No.)	<==Total PDO Crashes			0.0 (Type of Crash Prevented)	$13,000	=	$
Countermeasure 1	No		0%	0.0				
Countermeasure 2	No		0%	0.0				
Countermeasure 3	No		0%	0.0				
Countermeasure 4	No		0%	0.0				
Countermeasure 5	No		0%	0.0				
Moderate (Injury B) and Minor (Injury C) Injury Crashes	21 (ID No.)	<==Total Injury B&C Crashes			15.8 (Type of Crash Prevented)	$55,000	=	$ 868,000
Countermeasure 1 Constant Grade Separation	37.0		75%	15.8	All Crash Types			
Countermeasure 2	No		0%	0.0				
Countermeasure 3	No		0%	0.0				
Countermeasure 4	No		0%	0.0				
Countermeasure 5	No		0%	0.0				
Fatal and Severe (Injury A) Injury Crashes	1 (ID No.)	<==Total Fatal & InjA Crashes			1.0 (Type of Crash Prevented)	$1,359,000	=	$ 1,359,000
Countermeasure 1 Constant Grade Separation	37.0		100%	1.0	All Crash Types			
Countermeasure 2	No		0%	0.0				
Countermeasure 3	No		0%	0.0				
Countermeasure 4	No		0%	0.0				
Countermeasure 5	No		0%	0.0				

Comprehensive Economic Value per Crash		
Highway/Street Type	Urban	Rural
PDO[3]		
All facilities	$13,000	$13,000
Moderate (Injury B) and Minor (Injury C) Injury[4]		
Interstate or Freeway	$39,000	$51,000
Other State Highway	$41,000	$55,000
Fatal and Severe (Injury A) Injury[4]		
Interstate or Freeway	$694,000	$1,362,000
Other Highway	$689,000	$1,359,000

36 <==Crashes | Total Crash Value for 60 Months = $ 2,228,000

Annual Benefits = Total Crash Value / Total Months / 12 = $ 445,000

Estimated Project Cost = $ 17,554,000

B/C Ratio = Annual Benefits X Present Worth Factor (10 or 20 years) / Estimated Project Cost

B/C Ratio = $ 445,000 x 13.59 / $ 17,554,000 = **0.34**

Uniform Series Present Worth Factor (4%)	
10 years	20 years
8.11	13.59

Notes

1. Composite crash reduction factor calculated if more than one countermeasure is applied.
2. Select a PWF for the life of countermeasure. See instructions.
3. PDO value is $6,500 per crash adjusted with an under reporting factor of 2.0. National Safety Council 2000 estimates of value per crash.
4. Economic costs per crash are calculated using 1998-2000 Oregon crash data and FHWA's Technical Advisory "Motor Vehicle Accident Costs, T 7570.2, October 31, 1994" updated to 2001 dollars with GDP implicit price deflator.

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OREGON DEPARTMENT OF TRANSPORTATION
HAZARD ELIMINATION PROGRAM
BENEFIT/COST ANALYSIS WORKSHEET

Project Name: INH 4 | Region: 2 | Date: 6/2/07

Project on State Highway
Route Number: 22 | Hwy Name: WILLAMINA-SALEM | MP From: MP 20.27 | to: MP 20.61

Road Character: RURAL | Facility Type: OTHER HIGHWAY

County: POLK | City: OUT SIDE SALEM UBG | Crash Data From: 8/1/1999 | to: 7/31/2004

Project Description: Tight diamond interchange

Prepared By: Haregu Nemariam | Title: Transportation Engineer

Type of Target Crashes	Crash Countermeasure % Red.	Number of Target Crashes			a Number of Preventable Crashes	b Economic Value per Crash	=	a x b Total Economic Value
PDO Crashes		14	<==Total PDO Crashes		10.5	$13,000	=	$ 137,000
		(#/Yr)			Type of Crash Prevented			
Countermeasure 1 Overhead Grade Separation		37.0		75%	10.5	All Crash Types		
Countermeasure 2		No		0%	0.0			
Countermeasure 3		No		0%	0.0			
Countermeasure 4		No		0%	0.0			
Countermeasure 5		No		0%	0.0			
Moderate (Injury B) and Minor (Injury C) Injury Crashes		21	<==Total Injury B&C Crashes		15.8	$55,000	=	$ 866,000
		(#/Yr)			Type of Crash Prevented			
Countermeasure 1 Overhead Grade Separation		37.0		75%	15.8	All Crash Types		
Countermeasure 2		No		0%	0.0			
Countermeasure 3		No		0%	0.0			
Countermeasure 4		No		0%	0.0			
Countermeasure 5		No		0%	0.0			
Fatal and Severe (Injury A) Injury Crashes		1	<==Total Fatal & InjA Crashes		1.0	$1,359,000	=	$ 1,359,000
		(#/Yr)			Type of Crash Prevented			
Countermeasure 1 Overhead Grade Separation		37.0		100%	1.0	All Crash Types		
Countermeasure 2		No		0%	0.0			
Countermeasure 3		No		0%	0.0			
Countermeasure 4		No		0%	0.0			
Countermeasure 5		No		0%	0.0			

Comprehensive Economic Value per Crash		
Highway/Street Type	Urban	Rural
PDO[3]		
All facilities	$13,000	$13,000
Moderate (Injury B) and Minor (Injury C) Injury[4]		
Interstate or Freeway	$39,000	$51,000
Other State Highway	$41,000	$55,000
Fatal and Severe (Injury A) Injury[4]		
Interstate or Freeway	$694,000	$1,352,000
Other Highway	$669,000	$1,352,000

38 <==Crashes Total Crash Value for 60 Months = $ 2,362,000

Annual Benefits = Total Crash Value / Total Months / 12 = $ 472,000

Estimated Project Cost = $ 16,248,000

B/C Ratio = Annual Benefits X Present Worth Factor (10 or 20 years) / Estimated Project Cost

B/C Ratio = $ 472,000 x 13.59 / $ 16,248,000 = **0.39**

Uniform Series Present Worth Factor (4%)[5]	
10 years	20 years
8.11	13.59

Notes

1. Composite crash reduction factor calculated if more than one countermeasure is applied.
2. Select a PWF for the life of countermeasure. See instructions.
3. PDO value = $6,500 per crash adjusted with an under reporting factor of 2.0. National Safety Council, 2000 estimates of value per crash.
4. Economic costs per crash are calculated using 1998-2000 Oregon crash data and FHWA's Technical Advisory "Motor Vehicle Accident Costs, T 7570.2, October 31, 1994, updated to 2001 dollars with GDP implicit price deflator.

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OREGON DEPARTMENT OF TRANSPORTATION
HAZARD ELIMINATION PROGRAM
BENEFIT/COST ANALYSIS WORKSHEET

Project Name: INH 5 | Region: 2 | Date: 6/2/07

Project on State Highway

Route Number: 22 | Hwy Name: WILLAMINA-SALEM | MP From: MP 20.27 to MP 20.61

Road Character: RURAL | Facility Type: OTHER HIGHWAY

County: POLK | City: Out side Salem UBG | Crash Data From: 8/1/1999 to 7/31/2004

Project Description: Replace intersection with partial cloverleaf interchanges

Prepared By: Haregu Nemariam | Title: Transportation Engineer

Type of Target Crashes	Total Crashes & Countermeasure ID No.	Number of Target Crashes			A Number of Preventable Crashes	B Economic Value per Crash		A*B Total Economic Value
PDO Crashes	14 (ID No.)	<==Total PDO Crashes			1 10.5 (Type of Crash Prevented)	$13,000	=	$ 137,000
Countermeasure 1 Constant Grade Separation	37.0		75%	10.5	All Crash Types			
Countermeasure 2	No		0%	0.0				
Countermeasure 3	No		0%	0.0				
Countermeasure 4	No		0%	0.0				
Countermeasure 5	No		0%	0.0				
Moderate (Injury B) and Minor (Injury C) Injury Crashes	21 (ID No.)	<==Total Injury B&C Crashes			1 15.8 (Type of Crash Prevented)	$55,000	=	$ 866,000
Countermeasure 1 Constant Grade Separation	37.0		75%	15.8	All Crash Types			
Countermeasure 2	No		0%	0.0				
Countermeasure 3	No		0%	0.0				
Countermeasure 4	No		0%	0.0				
Countermeasure 5	No		0%	0.0				
Fatal and Severe (Injury A) Injury Crashes	1 (ID No.)	<==Total Fatal & InjA Crashes			1 1.0 (Type of Crash Prevented)	$1,359,000	=	$ 1,359,000
Countermeasure 1 Constant Grade Separation	37.0		100%	1.0	All Crash Types			
Countermeasure 2	No		0%	0.0				
Countermeasure 3	No		0%	0.0				
Countermeasure 4	No		0%	0.0				
Countermeasure 5	No		0%	0.0				

Comprehensive Economic Value per Crash		
Highway Street Type	Urban	Rural
PDO [3]		
All facilities	$13,000	$13,000
Moderate (Injury B) and Minor (Injury C) Injury [4]		
Interstate or Freeway	$35,000	$51,000
Other State Highway	$41,000	$55,000
Fatal and Severe (Injury A) Injury [4]		
Interstate or Freeway	$634,000	$1,352,000
Other Highway	$689,000	$1,359,000

36 <==Crashes | Total Crash Value for 60 Months = $ 2,362,000

Annual Benefits = Total Crash Value / Total Months / 12 = $ 472,000

Estimated Project Cost = $ 18,932,000

B/C Ratio = Annual Benefits X Present Worth Factor (10 or 20 years) / Estimated Project Cost

B/C Ratio = $ 472,000 x 13.59 / $ 18,932,000 = 0.34

Uniform Series Present Worth Factor (4%)	
10 years	20 years
8.11	13.59

Notes

1. Composite crash reduction factor calculated if more than one countermeasure is applied.
2. Select a PWF for the life of countermeasure. See instructions.
3. PDO value is $5,500 per crash adjusted with an under reporting factor of 2.0. National Safety Council, 2000 estimates of value per crash.
4. Economic costs per crash are calculated using 1996-2000 Oregon crash data and FHWA's Technical Advisory "Motor Vehicle Accident Costs, T 7570.2, October 31, 1994 updated to 2001 dollars with GDP implicit price deflator.

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OREGON DEPARTMENT OF TRANSPORTATION
HAZARD ELIMINATION PROGRAM
BENEFIT/COST ANALYSIS WORKSHEET

Project Name: INH 6 | Region: 2 | Date: 5/22/07

Project on State Highway

Route Number: 22 | Hwy Name: WILLAMINA-SALEM | MP From: MP 20.27 to MP 20.61

Road Character: RURAL | Facility Type: OTHER HIGHWAY

County: POLK | City: Out side Salem UGB | Crash Data From: 8/1/1999 to 7/31/2004

Project Description: Replace intersection with diamond interchange that includes westbound to southbound loop off-ramp from OR 22

Prepared By: Haregu Nemariam | Title: Transportation Engineer

Type of Target Crashes	Total Crashes & Countermeasure (2) No.	Number of Target Crashes			Number of Prevention Crashes	Economic Value per Crash		Total Economic Value
PDO Crashes	14 (2) No.	<==Total PDO Crashes			10.5 (Type of Crash Prevention)	$13,000	=	$ 137,000
Countermeasure 1 Constant Grade Separation	37.0		75%	10.5	All Crash Types			
Countermeasure 2	No		0%	0.0				
Countermeasure 3	No		0%	0.0				
Countermeasure 4	No		0%	0.0				
Countermeasure 5	No		0%	0.0				
Moderate (Injury B) and Minor (Injury C) Injury Crashes	21 (2) No.	<==Total Injury B&C Crashes			15.8 (Type of Crash Prevention)	$55,000	=	$ 868,000
Countermeasure 1 Constant Grade Separation	37.0		75%	15.8	All Crash Types			
Countermeasure 2	No		0%	0.0				
Countermeasure 3	No		0%	0.0				
Countermeasure 4	No		0%	0.0				
Countermeasure 5	No		0%	0.0				
Fatal and Severe (Injury A) Injury Crashes	1 (2) No.	<==Total Fatal & InjA Crashes			1.0 (Type of Crash Prevention)	$1,359,000	=	$ 1,359,000
Countermeasure 1 Constant Grade Separation	37.0		100%	1.0	All Crash Types			
Countermeasure 2	No		0%	0.0				
Countermeasure 3	No		0%	0.0				
Countermeasure 4	No		0%	0.0				
Countermeasure 5	No		0%	0.0				

36 <==Crashes | Total Crash Value for 60 Months = $ 2,362,000

Comprehensive Economic Value per Crash		
Highway/Street Type	Urban	Rural
PDO [3]		
All facilities	$13,000	$13,000
Moderate (Injury B) and Minor (Injury C) Injury [4]		
Interstate or Freeway	$38,000	$21,000
Other State Highway	$41,000	$30,000
Fatal and Severe (Injury A) Injury [4]		
Interstate or Freeway	$694,000	$1,362,000
Other Highway	$689,000	$1,359,000

Annual Benefits = Total Crash Value / Total Months / 12 = $ 472,000

Estimated Project Cost = $ 18,645,000

B/C Ratio = Annual Benefits X Present Worth Factor (10 or 20 years) / Estimated Project Cost

B/C Ratio = $ 472,000 x 13.59 / $ 18,645,000 = 0.34

Uniform Series Present Worth Factor (4%)	
10 years	20 years
8.11	13.59

Notes

1. Composite crash reduction factor calculated if more than one countermeasure is applied.
2. Select a PWF for the life of countermeasure. See instructions.
3. PDO value is $6,500 per crash adjusted with an under reporting factor of 2.0. National Safety Council, 2000 estimates of value per crash.
4. Economic costs per crash are calculated using 1998-2000 Oregon crash data and FHWA's Technical Advisory "Motor Vehicle Accident Costs, T 7570.2, October 31, 1994 updated to 2001 dollars with GDP implicit price deflator.

APPENDIX J

OR 22/51 Build Alternatives
Future Interchange Operations Analysis

Appendix J
OR 22/OR 51 Interchange Operations

Build Alternatives

Operations analyses were performed at three grade separated interchange forms for the OR 22/OR 51 intersection. These interchange forms included the following:

- Diamond Interchange – interchange ramps spaced anywhere from 500 feet (tight diamond) to 1000 feet (standard diamond).
- Single-Quadrant PARCLO B – conventional interchange with a westbound exiting loop ramp in the northwest quadrant.
- Dual-Quadrant PARCLO B – conventional interchange with westbound and eastbound exiting loop ramps in the northwest and southeast quadrants.

Performance Measures

The Highway Design Manual (HDM) outlines specific design performance measures for all new state highway facilities. These standards are in place to ensure the availability of long-term mobility along important road corridors and vary according to functional classification, location, and role within the overall highway system. According to the HDM, the 20-year design mobility standard for the OR 22/OR 51 ramp terminal intersections is a volume to capacity ratio of 0.60.

Diamond Interchange Operations

Interchange Forecast Volumes

Figure J-1 illustrates a preliminary layout of the Diamond Interchange Alternative. To assess the performance of this interchange alternative, forecast 2030 30th highest hour volumes were projected at the interchange ramp terminals assuming the potential limited access characteristics of OR 22. Two sets of interchange ramp terminal volumes were utilized in this performance assessment. The first set of volumes assumes that there would be no connection between OR 22 and Doaks Ferry Road (herein referred to as the “No Doaks Ferry Connection” scenario. Under this scenario, it is assumed that the end of Doaks Ferry Road would be rerouted onto one of the north side frontage road alternatives where access to OR 22 would then occur via the OR 22/OR 51 interchange. The second set of volumes assumes that there would continue to be access between OR 22 and Doaks Ferry Road; however the intersection would be modified to right-in/right-out/left-in movements only (herein referred to as the “Limited Doaks Ferry Connection” scenario. Both sets of interchange ramp terminal volumes are summarized in Figure J-1. As shown in the figure, the elimination of the OR 22/Doaks Ferry Road intersection has the potential to add a significant amount of traffic to the OR 22/OR 51 interchange, particularly that portion of OR 22 traffic with an origin/destination located west of the OR 22/OR 51 intersection.

Based on the 0.60 design mobility standard, various diamond interchange lane configuration and traffic control alternatives were evaluated to determine how the interchange ramps would perform under the projected 2030 future volume forecasts. Base lane configuration scenarios at the ramp terminal intersections included separate left- and right-turn lanes for each of the interchange off-ramps, a single through travel lane for OR 51, and separate left- or right-turn lanes along OR 51 at the ramp terminal intersections. The results of the operations analysis are summarized in the following paragraphs.

Unsignalized Ramp Terminal Operations

As unsignalized ramp terminal intersections, Figure J-1 illustrates that the critical left-turn movements from both the eastbound and westbound off-ramps are forecast to operate over capacity under the "No Doaks Ferry Connection" scenario. However, under the "Limited Doaks Ferry Connection" scenario, the westbound left-turn movement from the westbound off-ramp is forecast to operate at a volume to capacity ratio of 0.93. While operating under capacity, this intersection is still forecast to exceed the 0.60 design mobility standard by a considerable margin. As such, a planning level analysis of the diamond interchange configuration indicates that the interchange ramp terminals cannot operate as unsignalized intersections and still meet the design mobility criteria.

Based on the results of the unsignalized operations, a planning level signal warrant analysis was conducted under the "No Doaks Ferry Connection" and "Limited Doaks Ferry Connection" forecast traffic volume scenarios. From this analysis, it was found that only the eastbound ramp terminal would meet the preliminary signal warrant under the "No Doaks Ferry Connection" scenario. As a result of these findings, ODOT's TPAU unit encouraged the investigation of alternative ramp terminal treatments. One such treatment involves the use of roundabouts as the ramp terminal intersections.

Diamond Interchange Preliminary Signal Warrant Summary

Intersection	Meets ODOT's Preliminary Traffic Signal Warrant?
"No Doaks Ferry Connection" Scenario	
Westbound Ramp Terminal	No
Eastbound Ramp Terminal	Yes
"Limited Doaks Ferry Connection" Scenario	
Westbound Ramp Terminal	No
Eastbound Ramp Terminal	No

Roundabout Operations

Based on the results of the unsignalized operations, the interchange ramp terminals were investigated under the assumption that they could be developed as roundabout intersections. Assuming a single lane roundabout as shown in Figure J-1, the westbound roundabout approach to the westbound off-ramp terminal is forecast to operate over capacity under the "No Doaks

Ferry Connection" scenario. Under the "Limited Doaks Ferry Connection" scenario, the operations would improve significantly for this same approach and operate under capacity.

Diamond Interchange Operations Summary

As shown in the operations analysis, the eastbound and westbound ramp terminals (as unsignalized intersections) do not have sufficient capacity to systematically accommodate future 2030 demand under the "No Doaks Ferry Connection" and "Limited Doaks Ferry Connection" scenarios. Operations improve assuming roundabouts at the ramp terminals, however the westbound ramp terminal is still forecast to operate over capacity. In general, the diamond interchange configuration is unable to efficiently accommodate the heavy westbound to southbound and eastbound to northbound demand. As such, alternative interchange configurations were investigated as outlined in the following sections.

Single Quadrant PARCLO B Operations

Figure J-2 illustrates a preliminary layout of the Single Quadrant PARCLO B Interchange Alternative. This alternative would provide for a westbound exiting loop ramp in the northwest quadrant of the interchange with conventional exit/entrance ramps serving the other interchange movements. To assess the performance of this interchange alternative, forecast 2030 30th highest hour volumes were estimated at the interchange ramp terminals. As with the diamond interchange, two sets of interchange ramp terminal volumes were developed for this interchange alternative that reflect the "No Doaks Ferry Connection" and "Limited Doaks Ferry Connection" scenarios. Both sets of interchange ramp terminal volumes are summarized in Figure J-2.

Unsignalized Operations

With the addition of the westbound exiting loop ramp, Figure J-2 illustrates that the critical right-turn movement from the westbound off-ramp would operate at a volume to capacity ratio of 0.74 under both the "No Doaks Ferry Connection" and "Limited Doaks Ferry Connection". Although this movement would not meet the 0.60 design mobility standard, this is a substantial improvement compared to the unsignalized diamond interchange terminal. This improvement can be attributed to the loop ramp's ability to more efficiently accommodate the projected west to south demand. As with the diamond interchange scenario, a signal warrant analysis was performed at the single quadrant PARCLO B westbound loop ramp terminal. As shown in the following table, the ramp terminal is not forecast to meet ODOT's preliminary signal warrants. Accordingly, a roundabout operations analysis was performed.

PARCLO B Interchange Preliminary Signal Warrant Summary

Intersection	Meets ODOT's Preliminary Traffic Signal Warrant?
"No Doaks Ferry Connection" Scenario	
Westbound Ramp Terminal	No
"Limited Doaks Ferry Connection" Scenario	
Westbound Ramp Terminal	No

Roundabout Operations

As with the diamond interchange scenario, roundabout treatments were investigated for the single quadrant PARCLO B ramp terminals. As shown in Figure J-2, a single-lane roundabout is forecast to operate under capacity for both of the volume scenarios.

Single Quadrant PARCLO B Operations Summary

As shown in the operations analysis, the westbound exiting loop ramp is better able to accommodate the heavy westbound to southbound demand; however the ramp terminal is still not forecast to meet the 0.60 design mobility standard. Unlike the diamond interchange ramp, a roundabout intersection treatment would operate under capacity.

Dual Quadrant PARCLO B Operations

Figure J-3 illustrates a preliminary layout of the Dual Quadrant PARCLO B Interchange Alternative. This alternative includes westbound and eastbound exiting loop ramps in the northwest and southeast quadrants. To assess the performance of this interchange alternative, forecast 2030 30th highest hour volumes were estimated at the interchange ramp terminals. As with the previous two alternatives, two sets of interchange ramp terminal volumes were developed for this interchange alternative that reflect the “No Doaks Ferry Connection” and “Limited Doaks Ferry Connection” scenarios. Both sets of interchange ramp terminal volumes are summarized in Figure J-3.

Unsignalized Operations

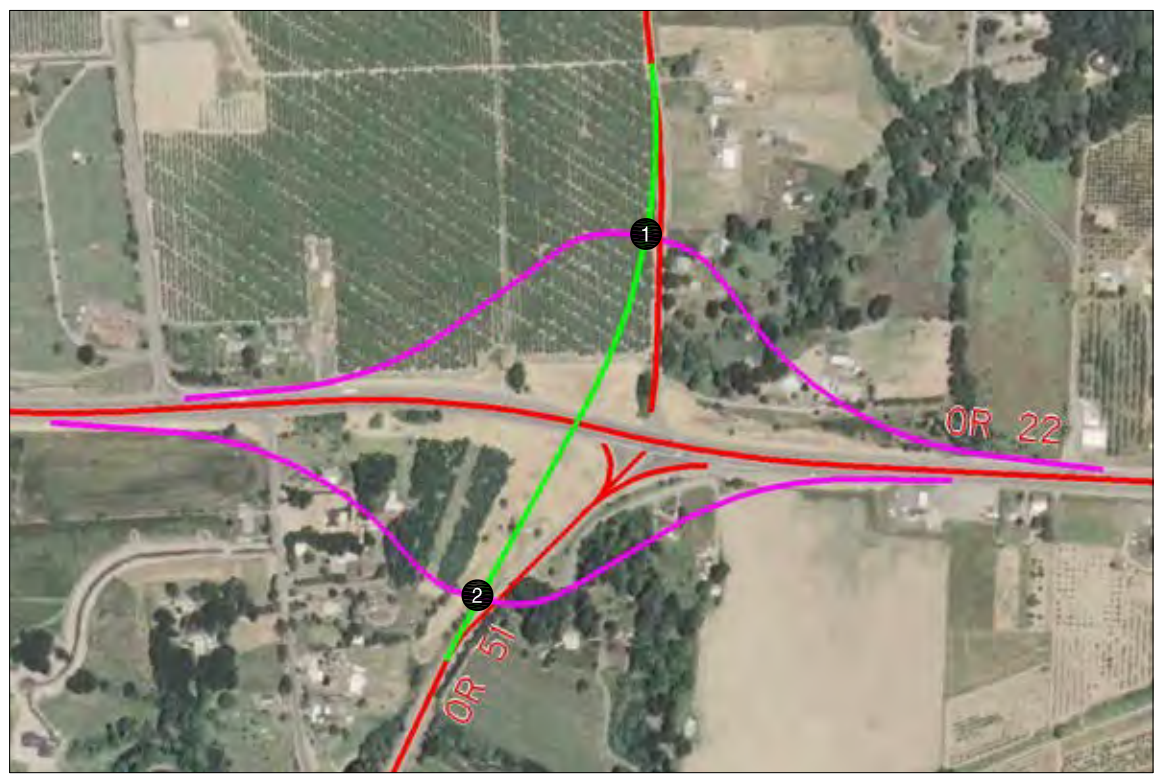
With the addition of the eastbound exiting loop ramp, Figure J-3 illustrates that the critical right-turn movement from the eastbound off-ramp would operate at a volume to capacity ratio of 0.39 under the “No Doaks Ferry Connection” and at 0.05 under the “Limited Doaks Ferry Connection”. Compared to the diamond ramp terminal, this is a substantial improvement that can be attributed to the exiting loop ramp’s ability to more efficiently accommodate the projected east to north demand. Although this terminal would operate at sufficient levels, a roundabout operation was prepared for comparison purposes.

Roundabout Operations

As with the previous two interchange scenarios, the dual quadrant PARCLO B design was investigated as a potential roundabout intersection. As shown in Figure J-3, a roundabout interchange terminal at the eastbound ramp terminal is forecast to operate with sufficient long-term capacity under both of the volume scenarios.

(Figures J-1 through J-3 attached)

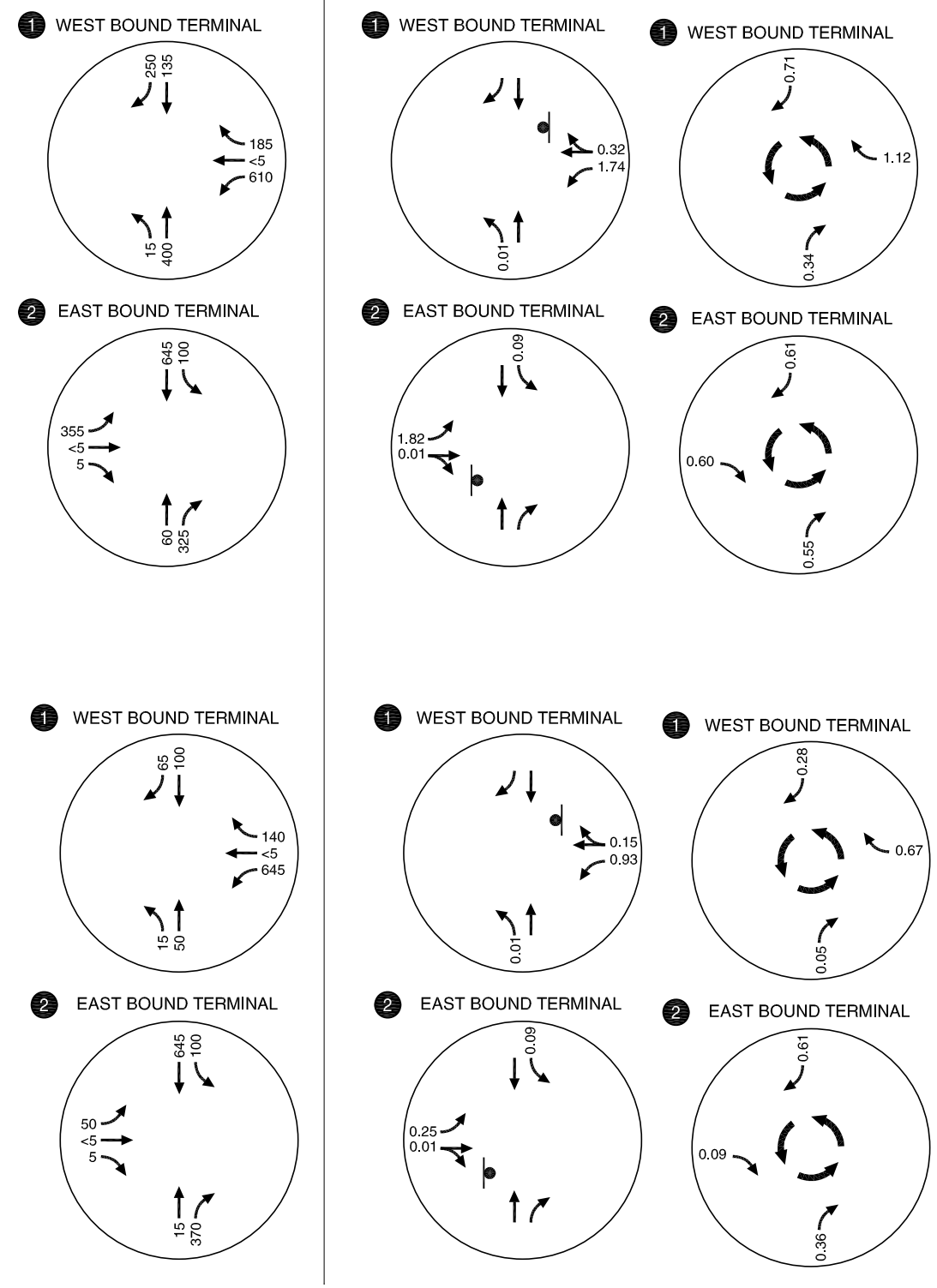
(NO SCALE)



ASSUMED INTERCHANGE GEOMETRY & CORRESPONDING RAMP OPERATIONS SUMMARY

(NO SCALE)

	2030 30TH HIGHEST HOUR RAMP TERMINAL VOLUMES	UNSIGNALIZED INTERSECTION	ROUNDABOUT INTERSECTION
ASSUMES NO OREGON 22 CONNECTION TO DOAKS FERRY ROAD "NO DOAKS FERRY CONNECTION"			
ASSUMES RIGHT-IN / RIGHT-OUT / LEFT-IN AT DOAKS FERRY ROAD "LIMITED DOAKS FERRY CONNECTION"			



LEGEND

CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

FUTURE 2030 INTERCHANGE OPERATIONS
DIAMOND INTERCHANGE ALTERNATIVE

FIGURE J-1

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

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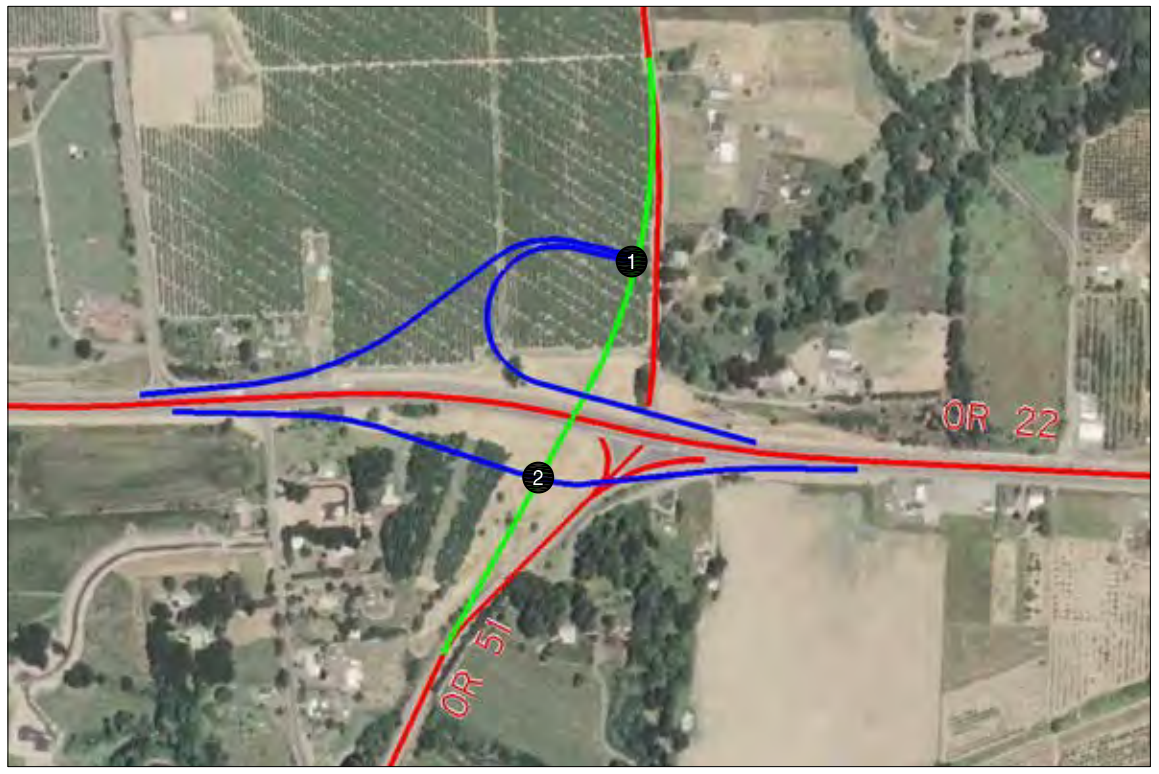

ASSUMED INTERCHANGE GEOMETRY & CORRESPONDING RAMP OPERATIONS SUMMARY

(NO SCALE)

	YEAR 2030 30TH HIGHEST HOUR RAMP TERMINAL VOLUMES	UNSIGNALIZED INTERSECTION	ROUNDABOUT INTERSECTION
ASSUMES NO OREGON 22 CONNECTION TO DOAKS FERRY ROAD "NO DOAKS FERRY CONNECTION"	1 WEST BOUND TERMINAL 250, 135, 185, 610, 15, 400	1 WEST BOUND TERMINAL 0.44, 0.74, 0.01	1 WEST BOUND TERMINAL 0.32, 0.71, 0.41
	2 EAST BOUND TERMINAL 645, 100, 355, <5, 5, 60, 325	2 EAST BOUND TERMINAL 0.09, 1.82, 0.01	2 EAST BOUND TERMINAL 0.61, 0.60, 0.55
ASSUMES RIGHT-IN / RIGHT-OUT / LEFT-IN AT DOAKS FERRY ROAD "LIMITED DOAKS FERRY CONNECTION"	1 WEST BOUND TERMINAL 65, 100, 140, 645, 15, 50	1 WEST BOUND TERMINAL 0.19, 0.74, 0.01	1 WEST BOUND TERMINAL 0.14, 0.69, 0.06
	2 EAST BOUND TERMINAL 645, 100, 50, <5, 5, 15, 370	2 EAST BOUND TERMINAL 0.09, 0.25, 0.01	2 EAST BOUND TERMINAL 0.61, 0.09, 0.36

LEGEND

CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

FUTURE 2030 INTERCHANGE OPERATIONS
SINGLE QUADRANT PARCLO-B INTERCHANGE ALTERNATIVE

FIGURE J-2

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

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DATE: 10/22/2007 10:46 BY: mhughart

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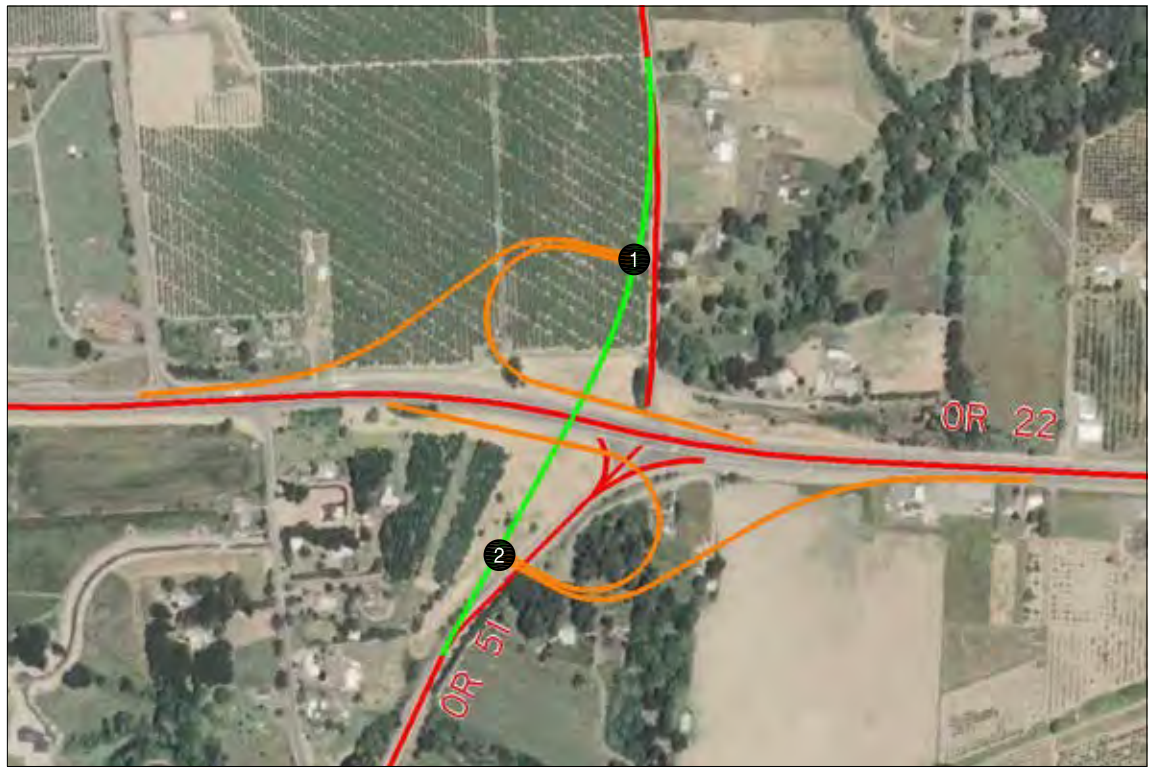

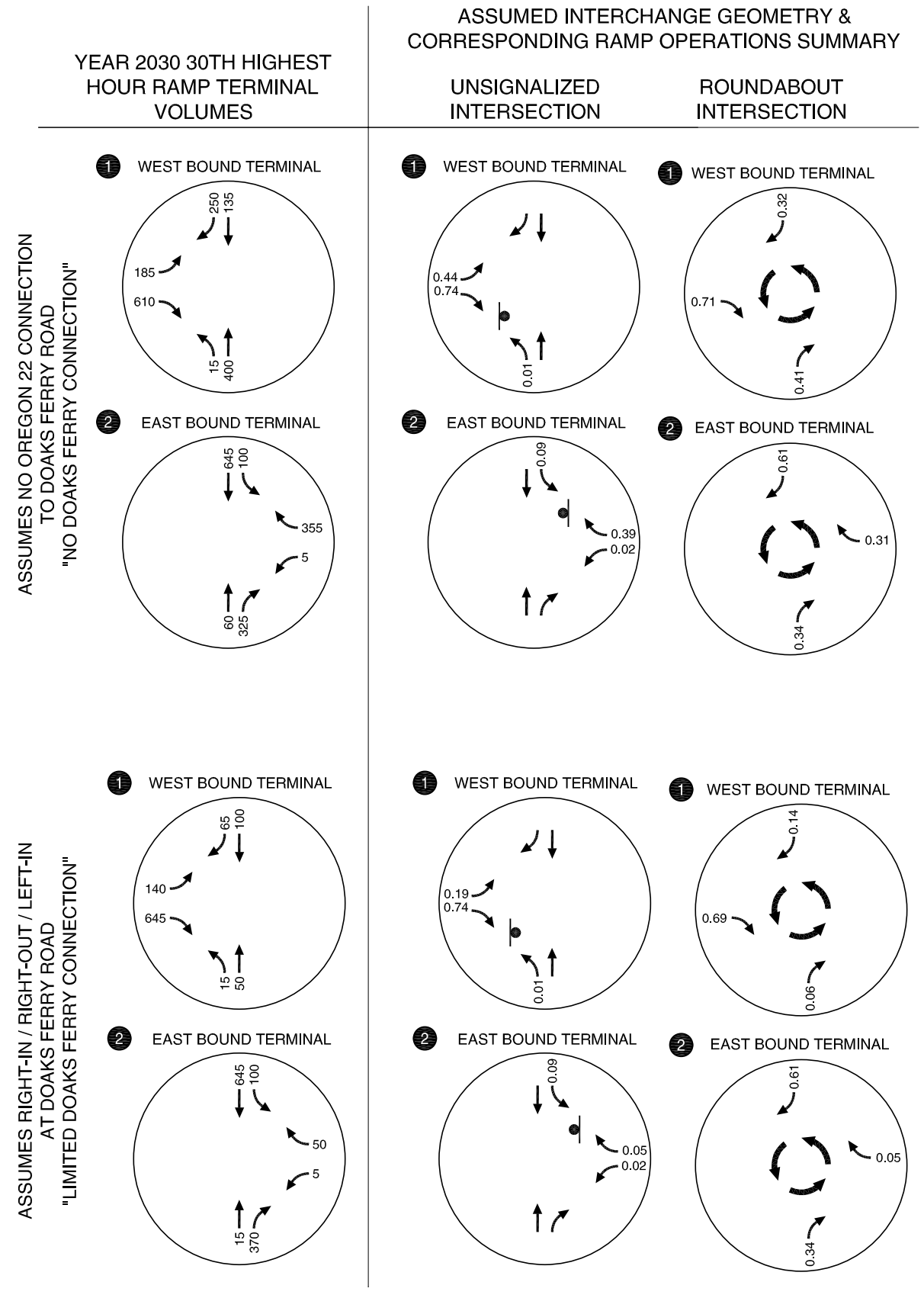

LEGEND

CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

FUTURE 2030 INTERCHANGE OPERATIONS
DUAL-QUADRANT PARCLO-B INTERCHANGE ALTERNATIVE

FIGURE J-3

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KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

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MODE: PM Lane Configuration
DATE: 10/22/2007 10:46 BY: mhughart

APPENDIX K

Stakeholder Meetings and Open House Summaries

OR 22 Expressway Management Plan Open House

DATE: December 12, 2007

TIME: 6:00 to 8:00 pm

LOCATION: Polk County Fairgrounds, Arts and Crafts Building

The first public open house for the current phase of the OR 22 Expressway Management Plan was held on Wednesday, November 28, 2007 from 6:00 to 8:00 pm at the Polk County Fairgrounds Arts and Crafts Building. The open house was structured to encourage community members to learn more about the proposed alternatives, which was posted at several stations. Approximately 38 people attended the open house, which had been publicized through a mailing to 95 households in the project vicinity. The open house was also announced to the local media with a press release that was distributed during the second week of November.

The purpose of the open house was to review the previous work that had been completed on the project two years ago and the proposed alternatives for the key intersections along OR 22. The project team also encouraged the public to complete a comment form or write down their thoughts on flip charts which were around the room. The meeting was staffed by members of the consulting team and staff members from ODOT, Polk County, and the Mid-Willamette Valley Council of Governments.

Meeting participants were welcomed at a sign-in table by a staff member and encouraged to complete a comment card before leaving. As community members signed in they were also encouraged to visit the open house stations, which included:

- What to expect tonight
- Background
- Draft Implementation Plan
- Proposed Alternatives

Most attendees appreciated the open house format, but a few asked if there would be a presentation with a question and answer period. Only a few comments were written down onto flip charts:

- Carts - access to Rickreall Road headed west
- Why was golf course given 2 access points (full movement) when Rickreall Road was restricted
- Emergency vehicle access to Rickreall Road
- Out of direction travel to get to properties on Rickreall Road

Comment Form Summary

Comment forms were available to all open house attendees, both at the sign-in table and at a table specifically for filling out comment forms. Nine forms were turned in to project staff at the meeting and one was mailed to project manager Dan Fricke by December 7. Six of the

ten forms returned checked that they heard about the open house from the project mailing, the others heard about the event via word of mouth.

1. Where is it hard for you to get onto OR 22? Have you seen any near misses or crashes at these spots?

1.1 Doaks Ferry Road – no accidents

1.2 Mill Street/Shaw Street – Green Thumb Lawn Care is on the south side of Highway 22. We now enter and exit Mill and Shaw Street nose to nose with Lawn Care vehicles.

1.3 OR 22 and 51 Intersection and gas stations along OR 22

1.4 Greenwood Road, Oak Grove Road, and Doaks Ferry Road

1.5 Greenwood Road is used by our farm on a daily basis, both by vehicles of equipment. It is not uncommon for us to wait 10+ minutes with equipment to safely cross, especially with the recent completion of the Rickreall interchange allowing a free flow of eastbound traffic. People do not slow down at all for vehicles or equipment crossing, and near misses are a daily occurrence (which is especially concerning when they are with the school buses that cross at Greenwood twice daily).

1.6 Oak Grove Road – Was not hard before Casino and new intersection at Rickreall. No near misses or crashes seen.

1.7 At Greenwood and OR 22 Yes/Yes. You're going through agricultural land and you need to respect the need of this as well as your through traffic. We live there, most of the through traffic doesn't.

1.8 Hwy 22 and Greenwood Road is a hardship, anti-agribusiness. It also hurt business in general.

2. Do you have any ideas for short-, medium-, or long-term changes that could improve OR 22?

2.1 Not at this time. The proposals are not clear enough to comment.

2.2 Close Shaw and Mill Streets and move the Highway entrance to Riggs Street. Continue 2nd Street to Riggs Street. If you close Shaw Street, build a burm across the entrance.

2.3 Short- and Medium-term: The frontage Roads with a tunnel so right on and right off can be done from OR 22. OR 22 and 51 Junction interchange should be a very high priority.

2.4 We are in the farm equipment business and rely on wide adequate road systems for slow moving vehicles, commerce, and the movement of production machinery needs to be well though out when devising interchanges and access. Signage and warning lights can be used more effectively and I want to discourage long re-routes around arterials.

2.5 Spend some of the money proposed for these projects to pay patrol officers to help maintain a constant speed – speed traps once a month do not establish in someone's mind that they should obey the speed limit in a particular area. If people weren't going anywhere from 50 to 80 mph, many of the problems wouldn't exist. Overpass with access at Greenwood! ***Signs warning of farm equipment crossing at 22 (we can't cross fast enough with tractors and loaded trucks when people are going 65+. They at least need a warning).

2.6 I would much prefer park and ride spots, frequent public transportation opportunities, and a significant hike in gas taxes. In light of both "peak oil" and "global warming" we don't want more cars driving more miles which an expressway would encourage. Think ahead to real solutions for the long term.

2.7 Mainly 2 – More traffic control to slow speeds. And an {drawing of loop} overpass at Greenwood to solve that problem and lessen farm equipment and tracks on Highway 99-W that is sometimes at Greenwood and 22.
2.8 Short-term – an overpass over Highway 22 at Greenwood Road with west off and east off.

3. Do you have any comments about the proposed alternatives?

Greenwood Road Intersection

3.1 Overpass – We have over 350 signatures supporting this, which we turned in to ODOT about a year ago and to the Polk County Commission.
3.2 A tighter on/off road, no need to cross two owner properties! Need to be done sooner than 10 years!
3.3 Access point needs to be included, and a close to overpass as possible to not unnecessarily eat up farmland. Overpass wide enough and good enough visibility for wide equipment to travel over.
3.4 Right-off in both directions.
3.5 How about a tunnel and access to 22 by Rickreall Road and none from Greenwood.

Independence Highway Junction

3.6 The overpass, the green lines look a lot more doable than some of the other!
3.7 Stay on railroad right of way too. Hwy 51 and stay off low ground and blueberries.
3.8 Priority
3.9 When is this planned to be built?

Doaks Ferry Road Intersection

3.10 I think that area should be up to the people who use it.
3.11 Use railroad right of way east and west of Eola Inn.
3.12 Combine with a tunnel
3.13 Needs work
3.14 Overpassing the eastbound lane of OR22 for Doak's Ferry Rd. access may cost less than any other option.

Frontage/Backage Roads and Access

3.15 Some might be needed but certainly not the entire that's proposed on two or three of the examples!
3.16 Combine with a tunnel
3.17 Needs work

4. Do you have anything else that you would like to tell the project team?

4.1 I saw no proposal where the Doaks Road would come out at College Drive.
4.2 Much of this "expressway" goes through EFU land, so consideration needs to be heavily given to equipment and truck traffic and movement when creating plans. Engineers themselves need to directly meet with public and business owners who are heavily impacted by plans.
4.3 We/I want to encourage fewer vehicles, less driving, more public transportation opportunities and real land use planning so that people live closer to where they work, shop, etc. Not sprawl – good planned communities. Thank you.
4.4 It would be good to meet with some of the engineers even if they don't think we know anything! There might be surprises since we live in the area. I have been on local fire department and rescue teams.
4.5 Overpass Greenwood Road-Hwy. 22, support business.

4.6 I appreciate the chance to give input on OR 22. Here are suggestions for the most hazardous section of OR 22:

1. Rosemont Intersection: Rosemount Street enters OR 22 at a point where sight distance is restricted. The situation is particularly bad if a car exist Rosemount and wishes to go to West Salem, as the entering car must cross 5 lanes of traffic to dive into the West Salem eastbound exit lane. I have observed drivers literally dive across the road immediately ahead of oncoming traffic. This high risk intersection lends itself to a simple, inexpensive, immediate fix. Extend the present median barricade another 50 feet. Nothing else is needed as Rosemont already connects directly to Stoneway which enters SR 22 at a safer location several hundred feet westward. This change is important as drivers on Stoneway use Rosemont as a shortcut to OR 22.

2. Rosemont and Stoneway intersections: Both intersections could be eliminated by routing their traffic across the south side of the Capitol Manor parking lot to the safe Capitol Manor intersection. This route presently exists but may be barricaded.

3. College Drive intersection: I see three alternatives of increasing cost:

   a. Place a stoplight at College drive intersection.

   b. Connect a frontage road to Stoneway to make use of the Capitol Manor intersection.

   c. Convert OR 22 into a frontage road between College drive and Capitol Manor. Bypass the mentioned frontage road with level direct connection between College drive and a point on OR 22 behind Pumilite. Some savings could be made by using the abandoned overpass as fill.

4. Transportation tax dollars should be prioritized and the Hwy 22 expressway is not the most important transportation project we face. I am against wasting any more money on this plan until more pressing issues are completed first, such as the third Salem bridge, OR 18, and Hwy 99 at Dundee.

MEMORANDUM

OR 22 Expressway Management Plan Open House – Response to Comments

DATE: December 17, 2007

TO: Project Management Team
File

FROM: Larry Weymouth/CH2M HILL
Dan Fricke/ODOT Region 2

This memorandum is ODOT's response to comments received at the first public open house for the current phase of the OR 22 Expressway Management Plan that was held on Wednesday, November 28, 2007 from 6:00 to 8:00 pm at the Polk County Fairgrounds Arts and Crafts Building. The open house was structured to encourage community members to learn more about the proposed alternatives, which was posted at several stations. Approximately 38 people attended the open house, which had been publicized through a mailing to 95 households in the project vicinity. The open house was also announced to the local media with a press release that was distributed during the second week of November. For additional information about the meeting's purpose, content, and participation, see the Meeting Summary (12/12/07). Comments from the meeting are included below with ODOT's response.

Comment Form Summary

1. Where is it hard for you to get onto OR 22? Have you seen any near misses or crashes at these spots?

1.1 Doaks Ferry Road – no accidents
RESPONSE: ODOT crash data have in the recent past shown 27 crashes at this location from 2001 to 2006.

1.2 Mill Street/Shaw Street – Green Thumb Lawn Care is on the south side of Highway 22. We now enter and exit Mill and Shaw Street nose to nose with Lawn Care vehicles.
RESPONSE: A center two-way left turn lane with accesses directly on opposite sides of the highway is a recognized problem. The medium-term alternative in the EMP would install a median barrier and close the Lawn Care access while keeping the left-in movement to Mill Street for east bound highway traffic.

1.3 OR 22 and 51 Intersection and gas stations along OR 22
RESPONSE: The direct access to the gas station from OR 22 would be closed and alternate access provided via a frontage road, under the medium-term phase.

1.4 Greenwood Road, Oak Grove Road, and Doaks Ferry Road
RESPONSE: The safety issues at these locations are they primary focus of the EMP and would be improved by any of the alternatives considered.

1.5 Greenwood Road is used by our farm on a daily basis, both by vehicles of (and) equipment. It is not uncommon for us to wait 10+ minutes with equipment to safely cross, especially with the recent completion of the Rickreall interchange allowing a free flow of eastbound traffic. People do not slow down at all for vehicles or equipment crossing, and near misses are a daily occurrence (which is especially concerning when they are with the school buses that cross at Greenwood twice daily).

RESPONSE: ODOT recognizes the safety issues at this location and is proposing in the EMP an overpass for vehicles and farm equipment.

1.6 Oak Grove Road – Was not hard before Casino and new intersection at Rickreall. No near misses or crashes seen.

RESPONSE: A continuous median barrier proposed in the EMP would separate directional traffic and eliminate left-out movements at this location.

1.7 At Greenwood and OR 22 Yes/Yes. You're going through agricultural land and you need to respect the need of this as well as your through traffic. We live there, most of the through traffic doesn't.

RESPONSE: See response for comment 1.5.

1.8 Hwy 22 and Greenwood Road is a hardship, anti-agribusiness. It also hurt business in general.

RESPONSE: See response for comment 1.5. ODOT recognizes the need for its highways to accommodate agribusiness-related machinery and vehicles in rural areas. The EMP proposes an overcrossing at this location.

2. Do you have any ideas for short-, medium-, or long-term changes that could improve OR 22?

2.1 Not at this time. The proposals are not clear enough to comment.

RESPONSE: Comment noted. Handouts and drawings attempted to explain the proposed changes. ODOT welcomes additional inquiries.

2.2 Close Shaw and Mill Streets and move the Highway entrance to Riggs Street. Continue 2nd Street to Riggs Street. If you close Shaw Street, build a burm across the entrance.

RESPONSE: Comment noted. The exact access in this vicinity still has to be decided but will provide a connection to a new backage road under the medium-term improvements of the EMP.

2.3 Short- and Medium-term: The frontage Roads with a tunnel so right on and right off can be done from OR 22. OR 22 and 51 Junction interchange should be a very high priority.

RESPONSE: The EMP is consistent with this comment.

2.4 We are in the farm equipment business and rely on wide adequate road systems for slow moving vehicles, commerce, and the movement of production machinery needs to be well though out when devising interchanges and access. Signage and warning lights can be used more effectively and I want to discourage long re-routes around arterials.

RESPONSE: ODOT generally does not favor out-of-direction travel because of the negative impacts on traveler convenience and energy use. However, longer routes than would be ideal are sometimes unavoidable to implement safety improvements.

2.5 Spend some of the money proposed for these projects to pay patrol officers to help maintain a constant speed – speed traps once a month do not establish in someone's mind that they should obey the speed limit in a particular area. If people weren't going anywhere from 50 to 80 mph, many of the problems wouldn't exist. Overpass with access at Greenwood! ***Signs warning of farm equipment crossing at 22 (we can't cross fast enough with tractors and loaded trucks when people are going 65+. They at least need a warning).

RESPONSE: Studies have shown that enforcement actions if not regular and ongoing (essentially permanent) have little long-term effect on changing driver behavior. Warning signs serve to only alert drivers to hazardous situations but are ineffective in slowing most vehicles and creating more safe conditions for cross traffic. The EMP proposes an overcrossing at Greenwood Road as the solution to improve safety.

2.6 I would much prefer park and ride spots, frequent public transportation opportunities, and a significant hike in gas taxes. In light of both "peak oil" and "global warming" we don't want more cars driving more miles which an expressway would encourage. Think ahead to real solutions for the long term.

RESPONSE: ODOT agrees that expansion of public transit and an increase in gas taxes would help to reduce congestion on OR 22. The EMP should address potential improvements to public transit in more detail. The environmental assessment for the proposed OR 22/51 interchange will address energy and air quality impacts.

2.7 Mainly 2 – More traffic control to slow speeds. And an {drawing of loop} overpass at Greenwood to solve that problem and lessen farm equipment and tracks on Highway 99-W that is sometimes at Greenwood and 22.

RESPONSE: See response to comment 2.5.

2.8 Short-term – an overpass over Highway 22 at Greenwood Road with west off and east off.

RESPONSE: District FHWA guidelines for highway development in rural areas restrict interchanges to a minimum of 3 miles apart. Provision for west off and east off traffic at Greenwood Road (milepost 18.61) would create an interchange that would be closer than 3 miles to the Rickreall/ Hwy 99 interchange (milepost 16.20) and the proposed OR 22/51 interchange (milepost 20.37). Thus, these proposed improvements are unlikely to be approved for federal funding, which would be necessary for construction. In addition, ODOT's interchange spacing standards for rural expressways is 2 miles apart.

3. Do you have any comments about the proposed alternatives?

Greenwood Road Intersection

3.1 Overpass – We have over 350 signatures supporting this, which we turned in to ODOT about a year ago and to the Polk County Commission.

RESPONSE: ODOT has retained the public comments from previous efforts associated with this EMP.

3.2 A tighter on/off road, no need to cross two owner properties! Need to be done sooner than 10 years!

RESPONSE: The location of the westbound off-ramp to Greenwood Road is conceptual on the drawing. Final design will determine the best location, which will consider property ownerships with other engineering design factors. Implementation will depend on the availability and prioritization of funding.

3.3 Access point needs to be included, and a close to overpass as possible to not unnecessarily eat up farmland. Overpass wide enough and good enough visibility for wide equipment to travel over.

RESPONSE: See responses to comments 1.5 and 3.2.

3.4 Right-off in both directions.

RESPONSE: See response to comment 2.8.

3.5 How about a tunnel and access to 22 by Rickreall Road and none from Greenwood.

RESPONSE: This alternative was discussed during earlier efforts but was not advanced for further consideration.

Independence Highway Junction

3.6 The overpass, the green lines look a lot more doable than some of the other!

RESPONSE: Comment noted.

3.7 Stay on railroad right of way too. Hwy 51 and stay off low ground and blueberries.

RESPONSE: ODOT agrees that there are benefits to using existing right of way and avoiding agricultural and wetlands impacts whenever possible.

3.8 Priority

RESPONSE: The EMP incorporates improvements to OR 22/51 as a priority.

3.9 When is this planned to be built?

RESPONSE: Construction must be preceded by environmental assessment, a plan for funding, and engineering design. Those actions could take at least 3 years.

Doaks Ferry Road Intersection

3.10 I think that area should be up to the people who use it.

RESPONSE: The purpose of the open house is to get input from people who use these roads. It is the responsibility of Polk County to maintain Doaks Ferry Road, while ODOT has authority to control access to OR 22.

3.11 Use railroad right of way east and west of Eola Inn.

RESPONSE: See response to comment 3.7.

3.12 Combine with a tunnel

RESPONSE: Comment noted. An underpass (or tunnel) is part of a proposed improvement.

3.13 Needs work

RESPONSE: Comment noted. The final EMP will provide additional clarity; however, engineering design will address remaining issues of feasibility.

3.14 Overpassing the eastbound lane of OR22 for Doak's Ferry Rd. access may cost less than any other option.

RESPONSE: An overpass at this location was considered but was found infeasible due to topographic constraints and excessive grades.

Frontage/Backage Roads and Access

3.15 Some might be needed but certainly not the entire that's proposed on two or three of the examples!

RESPONSE: Implementation would be phased and as necessary to provide access to businesses, both current and future.

3.16 Combine with a tunnel

RESPONSE: See response to comment 3.12.

3.17 Needs work

RESPONSE: See response to comment 3.13.

4. Do you have anything else that you would like to tell the project team?

4.1 I saw no proposal where the Doaks Road would come out at College Drive.

RESPONSE: This improvement was raised as a long-term alternative to anticipated future growth in the area east of Doaks Ferry Road. The location of the connection from the vicinity of an interchange at College Drive to Doaks Ferry Road would be decided during development permitting process of Polk County. The intent of the EMP is to have Polk County amend its Transportation System Plan to include such a connection as a basis for allowing development.

4.2 Much of this "expressway" goes through EFU land, so consideration needs to be heavily given to equipment and truck traffic and movement when creating plans. Engineers themselves need to directly meet with public and business owners who are heavily impacted by plans.

RESPONSE: See response to comments 1.5 and 1.8. Public involvement in design issues will be ongoing and is always welcome.

4.3 We/I want to encourage fewer vehicles, less driving, more public transportation opportunities and real land use planning so that people live closer to where they work, shop, etc. Not sprawl – good planned communities. Thank you.

RESPONSE: The Transportation Planning Rule (OAR 660-012) governs ODOT and Polk County actions and addresses these issues.

4.4 It would be good to meet with some of the engineers even if they don't think we know anything! There might be surprises since we live in the area. I have been on local fire department and rescue teams.

RESPONSE: ODOT especially values the input of citizens who have first-hand experience and knowledge of local transportation issues.

4.5 Overpass Greenwood Road-Hwy. 22, support business.
RESPONSE: Comment noted. See response to comments 1.5 and 1.8.

4.6 I appreciate the chance to give input on OR 22. Here are suggestions for the most hazardous section of OR 22:

1. Rosemont Intersection: Rosemount Street enters OR 22 at a point where sight distance is restricted. The situation is particularly bad if a car exist Rosemount and wishes to go to West Salem, as the entering car must cross 5 lanes of traffic to dive into the West Salem eastbound exit lane. I have observed drivers literally dive across the road immediately ahead of oncoming traffic. This high risk intersection lends itself to a simple, inexpensive, immediate fix. Extend the present median barricade another 50 feet. Nothing else is needed as Rosemont already connects directly to Stoneway which enters SR 22 at a safer location several hundred feet westward. This change is important as drivers on Stoneway use Rosemont as a shortcut to OR 22.

RESPONSE: Comment noted. This EMP only addresses the area to the east as far as College Drive. The comment will be retained for future studies.

2. Rosemont and Stoneway intersections: Both intersections could be eliminated by routing their traffic across the south side of the Capitol Manor parking lot to the safe Capitol Manor intersection. This route presently exists but may be barricaded.

RESPONSE: Comment noted. This EMP only addresses the area to the east as far as College Drive. The comment will be retained for future studies.

3. College Drive intersection: I see three alternatives of increasing cost:

a. Place a stoplight at College drive intersection.

RESPONSE: Installation of stop lights is contrary to the defined function of an expressway. Grade separations and interchanges are the preferred traffic engineering method for handling cross traffic at intersections. Studies show that stop lights can increase rear-end crashes on expressways.

b. Connect a frontage road to Stoneway to make use of the Capitol Manor intersection.

RESPONSE: Comment noted. This EMP only addresses the area to the east as far as College Drive. The comment will be retained for future studies.

c. Convert OR 22 into a frontage road between College drive and Capitol Manor. Bypass the mentioned frontage road with level direct connection between College drive and a point on OR 22 behind Pumilite. Some savings could be made by using the abandoned overpass as fill.

RESPONSE: Comment noted. This EMP only addresses the area to the east as far as College Drive. The comment will be retained for future studies.

Previous Public Involvement Efforts for OR 22/51

PREPARED FOR: Dan Fricke/ODOT Region 2

PREPARED BY: Brandy Steffen

COPIES: Larry Weymouth/CH2M HILL

DATE: May 14, 2007

The purpose of this memo is to summarize the previous efforts and work performed by ODOT for the OR 22/51 Expressway Management Plan (EMP) from Doaks Ferry Road to Greenwood Road. Included in this memo:

- Timeline of previous outreach activities
- Stakeholder information from previous projects
- Printed materials, including project materials and news articles about the previous projects

Timeline

Year	Activity
Project 22: Highway 22/51 Interchange Implementation Strategy	
June 2005	No known public involvement activities by time of project delivery concepts and strategy report. Mentions using information from a September 2004 public hearing.
OR Highway 22 Expressway Management Plan	
September 30, 2004	Public Open House to present alternatives and gather public comments (OR 22 from Doaks Ferry to Greenwood Road)
OR Highway 18/22 Safety Projects	
Spring 2002	Develop Purpose and Need/Problem Statement
November 7, 2002	Public hearing on plans to improve Highway 18/22 from Steel Bridge Road to the Van Duzer Corridor. Environmental assessment of Highway 18/22.
Willamina to Salem Corridor Oregon Highway Route 22 Project	
January 1996	Final plan is published
May 17, 1995	Open House to discuss the draft Strategy. Held from 4:30 – 7:30 at the Willamina Middle School.
May 16, 1995	Open House to discuss the draft Strategy. Held from 4:30 – 7:30 at the Walker School Cafeteria.
May 16, 1995	Open House to discuss the draft Strategy. Held from 11:30 am – 1:00 pm at the ODOT Region 2 District Office.
May 15, 1995	Open House to discuss the draft Strategy. Held from 4:30 – 7:30 pm at the Polk County Fair Grounds.

May 1995	Ad placed in Itemizer Observer and Statesman Journal inviting the public to attend a series of open houses to discuss the draft Strategy.
May 1995	A newsletter was mailed to announce the May open houses and provide information on the results of the previous open houses and project's process (additional information not available).
January/February 1995	Open Houses held (additional information not available). The May newsletter states that over 250 people commended on the project, through various mediums.
February 1995	Ads published in the Polk County Itemizer Observer, Statesman Journal, and Goal Latino (in Spanish) soliciting comments on the project. Questions included travel direction, travel mode, major concerns, and joining the mailing list
January 1995	A newsletter was mailed that included an introduction to the project and asked basic questions that were repeated in ads run during February 1995.

Stakeholder Information

Name	Organization	Contact Information	Collected From
	Andy's Fruit Stand	5152 Salem-Dallas Hwy. NW Salem OR 97304 503-362-1363	Other Contacts (October 2001 or unknown dates)
	Bobcat of Salem	5135 Salem-Dallas Hwy. NW Salem, OR 97304 503-566-7172	Other Contacts (October 2001 or unknown dates)
	Brunk House	5705 Salem-Dallas Hwy. NW Salem, OR 97304 503-371-8586	Other Contacts (October 2001 or unknown dates)
	Capital Manor Retirement Center	1955 Salem-Dallas Hwy. NW Salem, OR 97304 503-362-4101	Other Contacts (October 2001 or unknown dates)
	Chevron	5322 Salem-Dallas Hwy. NW Salem, OR 97304 503-365-0557	Other Contacts (October 2001 or unknown dates)
	Classic Cabinets	2625 Salem-Dallas Hwy. NW Salem, OR 97304 503-378-7301	Other Contacts (October 2001 or unknown dates)
	Confederated Tribes of Grand Ronde	PO Box 39 Grand Ronde, OR 97347	Highway 22W Corridor Planning Citizens Advisory Group
	Confederated Tribes of the Grand Ronde		Willamette River Crossing Capacity Major Investment Study Task Force (March 1999)
	Cruisen Classics	2655 Salem-Dallas Hwy. NW Salem, OR 97304 503-378-7883	Other Contacts (October 2001 or unknown dates)
	Eola Bend RV Park	4700 Salem-Dallas Hwy. 22 Salem, OR 97304	Other Contacts (October 2001 or

		503-364-7714	unknown dates)
	Eola Trailer Park	3485 Salem-Dallas Hwy. NW Salem, OR 97304 503-364-9482	Other Contacts (October 2001 or unknown dates)
	Fisher Implement Co., Inc.	111 50th Avenue NW Salem, OR 97304 503-581-5033	Other Contacts (October 2001 or unknown dates)
	Knorr Steel Framing Systems	5073 Salem-Dallas Hwy. NW Salem, OR 97304 503-371-8038	Other Contacts (October 2001 or unknown dates)
	Leisureland Homes, Inc.	2535 Salem-Dallas Hwy. NW Salem, OR 97304 503-399-0127	Other Contacts (October 2001 or unknown dates)
	McCullough Roofing	5153 Salem-Dallas Hwy. NW Salem, OR 97304 503-363-1968	Other Contacts (October 2001 or unknown dates)
	Oak Knoll Golf Course	6335 Salem-Dallas Hwy. 22 Salem, OR 97304 503-378-0344	Other Contacts (October 2001 or unknown dates)
	Oregon Department of Administrative Services		Willamette River Crossing Capacity Major Investment Study Task Force (March 1999)
	Pentacle Theater	324 52nd Avenue NW Salem, OR 97304 503-364-7121	Other Contacts (October 2001 or unknown dates)
	Pipe, Inc of Salem	5032 Salem-Dallas Hwy. NW Salem, OR 97304 503-585-7350	Other Contacts (October 2001 or unknown dates)
	Restlawn Funeral Home and Cemetery	201 Oak Grove Road NW Salem, OR 97304 503-585-1373	Other Contacts (October 2001 or unknown dates)
	Robinson Well Drilling and Pumps, Inc.	4520 Salem-Dallas Hwy. NW Salem, OR 97304 503-371-1844	Other Contacts (October 2001 or unknown dates)
	Salem Youth Commission		SKATS Committee (August 2000)
	Salem-Keizer School District		Salem Joint Advisory Subcommittee on Transportation (JASC) (August 2000)
	SAMTD Senior and Disabled		SKATS Committee (August 2000)
	Touch of Mink	2485 Salem-Dallas Hwy. NW Salem, OR 97304 503-399-0127	Other Contacts (October 2001 or unknown dates)
	Valley Recycling and Disposal	2515 Salem-Dallas Hwy. NW Salem, OR 97304 503-585-4300	Other Contacts (October 2001 or unknown dates)

	West Salem Foursquare Church	4750 Salem-Dallas Hwy. NW Salem, OR 97304 503-391-4346	Other Contacts (October 2001 or unknown dates)
	Westside Driving Range	6050 Highway 22 Salem, OR 97304 503-364-3615	Other Contacts (October 2001 or unknown dates)
	Westside Mini-Storage	2401 Salem-Dallas Hwy. Salem, OR 97304 503-585-0285	Other Contacts (October 2001 or unknown dates)
Airport Supervisor	McNary Field	2990 25th Street SE Salem, OR 97302	Highway 22W Corridor Planning Citizens Advisory Group
Al Barnhill	Central School District	1610 Monmouth Independence, OR 97351	Highway 22W Corridor Planning Citizens Advisory Group
Ann Gavin Sample, Chair	City of Salem Councilor		Salem Joint Advisory Subcommittee on Transportation (JASC) (August 2000)
Barbara Michels	West Salem Neighborhood Association	355 Kingwood Avenue NW Salem, OR 97304	Highway 22W Corridor Planning Citizens Advisory Group
Bart McElroy	School District		Policy Committee (August 2000)
Bill Lahmann, Manager Customer Relations	US Postal Service	PO Box 14000 Salem, OR 97309	Highway 22W Corridor Planning Citizens Advisory Group
Bill Smaldone	City of Salem Councilor		Salem Joint Advisory Subcommittee on Transportation (JASC) (August 2000)
Bob Newton	City of Keizer		Policy Committee (August 2000)
Bob Royer	Marion County	3599 Dogwood Drive S Salem, OR 97302 503-362-3502	Willamette River Crossing Capacity Major Investment Study Task Force (March 1999)
Charla Richards-Kreitzberg	South Salem Neighborhood Association	3733 Dogwood Drive S Salem, OR 97302	Highway 22W Corridor Planning Citizens Advisory Group
Charley Waters	Salem Neighborhoods Inc.		Salem Joint Advisory Subcommittee on

			Transportation (JASC) (August 2000)
City Manager	City of Independence	PO Box 7 Independence, OR 97351	Highway 22W Corridor Planning Citizens Advisory Group
Councilor Ken Woods, Jr.	City of Dallas	1130 Main Street Dallas, OR 97338	Highway 22W Corridor Planning Citizens Advisory Group
Craig Hanneman	Polk County Business	4350 Gibson Road Salem, OR 97304 503-362-5812	Willamette River Crossing Capacity Major Investment Study Task Force (March 1999)
Dale Peterson, President	HUT Development Corporation	4800 Salem-Dallas Hwy. 22 Salem, OR 97304 503-364-0506	Other Contacts (October 2001 or unknown dates)
Dan Voigt	Voigt Paving	3574 Eola Drive NW Salem, OR 97304 503-364-7783	Other Contacts (October 2001 or unknown dates)
Dave Bishop	ODOT		Policy Committee (August 2000)
Dave Haugeberg	Yamhill County	PO Box 480 McMinnville, OR 97128 503-472-5141	Willamette River Crossing Capacity Major Investment Study Task Force (March 1999)
Dave Kittrell	BPA	2715 Tepper Lane Keizer, OR 97303 503-392-2071	Other Contacts (October 2001 or unknown dates)
David Schuerman	Rickreall Derry Area Advisory Committee	503-623-7567	Other Contacts (October 2001 or unknown dates)
Deane Funk	Salem Chamber of Commerce	4245 Kale Street NE Salem, OR 97305	Willamette River Crossing Capacity Major Investment Study Task Force (March 1999)
Dennis Kilfiol	Salem Area Mass Transit District Senior and Disabled Consumer Advisory Committee	1362 Moonbeam Court NW Salem, OR 97304 503-585-0320	Willamette River Crossing Capacity Major Investment Study Task Force (March 1999)
Dennis Koho	Salem-Keizer Area Transportation Study Policy Committee	1142 Larchwood Street NE Keizer, OR 97303 503-393-2906	Policy Committee (August 2000)
Denny Nielsen	Salem Hospital	665 Winter Street SE Salem, OR 97309	Highway 22W Corridor Planning Citizens Advisory Group
Doris Heavner	City of Salem Citizens Advisory Traffic	3895 Ash Avenue SE Salem, OR 97302	Willamette River Crossing Capacity

	Commission	503-585-2660	Study Task Force (1999)
Eb Engelmann	Environmental Interest	c/o 355 Capitol Street NE Salem, OR 97310 503-986-3481	Willamette River Crossing Capacity Study Task Force (1999)
Ed Greenwood, Chair	Eola Area Advisory Group	503-399-1092	Other Contacts (October 2001 or unknown dates)
Edward Jochums	Community Services Department, City of Salem	555 Liberty Street SE #300 Salem, OR 97301	Highway 22W Corridor Planning Citizens Advisory Group
Eleanor Miller	Salem Neighborhood Involvement	1675 Atta View Drive S Salem, OR 97302 503-363-7706	SKATS Committee (August 2000)
Garth Larson	West Salem Business Association	3094 Glen Creek Road Salem, OR 97304 503-363-1436	Willamette River Crossing Capacity Major Investment Study Task Force (March 1999)
Gary Anderson	Private Provider		SKATS Committee (August 2000)
Gary Viehdorfer	Salem-Keizer Schools Community Advisory Committee	5564 Sugarplum Street SE Salem, OR 97306 503-378-8689 x 230	SKATS Committee (August 2000)
Gene Miller	Polk County Citizen at Large	320 Fir Villa Road Dallas, OR 97338 503-623-6875	Willamette River Crossing Capacity Major Investment Study Task Force (March 1999)
Gerry Bartz	Salem Downtown Development Advisory Board	3145 Winslow Way NW Salem, OR 97304	Willamette River Crossing Capacity Major Investment Study Task Force (March 1999)
Grafe		1328 Dogwood Drive Woodburn, OR 97071	Highway 22W Corridor Planning Citizens Advisory Group
Greg Gilmor	Salem-Keizer Area Transportation Study, Goods Movement Advisory Committee (Agricultural Interest)	2255 Madrona Avenue SE Salem, OR 97302 503-399-8019	Willamette River Crossing Capacity Major Investment Study Task Force (March 1999)
Janet Taylor	Salem Economic Development Corporation	PO Box 13999 Salem, OR 97309 503-581-8338	SKATS Committee (August 2000)
Jason Smith	J&J Stump and Tree Removal	4305 Salem-Dallas Hwy. NW Salem, OR 97304 503-585-2443	Other Contacts (October 2001 or unknown dates)
Jerry Thompson	Salem Area Transit District Board of Directors		Salem Joint Advisory Subcommittee on

			Transportation (JASC) (August 2000)
Jerry Watson	City of Keizer	1237 Manzanita Way NE Keizer, OR 97303 503-393-8160	Willamette River Crossing Capacity Study Task Force (1999)
John Rich		536 Oregon Avenue NE Salem, OR 97301	Highway 22W Corridor Planning Citizens Advisory Group
John Whittington	Salem Area Transit	3140 Del Webb Avenue NE Salem, OR 97303	Highway 22W Corridor Planning Citizens Advisory Group
Karen Trucke	City of Keizer Neighborhoods	6330 14th Avenue NE Keizer, OR 97303 503-390-1234	Willamette River Crossing Capacity Major Investment Study Task Force (March 1999)
Keith Miller	Senior Trooper, OSP	3710 Portland Road NE Salem, OR 97310	Highway 22W Corridor Planning Citizens Advisory Group
Kelly Munger	City of Salem Planning Commission		Salem Joint Advisory Subcommittee on Transportation (JASC) (August 2000)
Kevin Johnston	SKATS Citizen Advisory Committee	5250 Faircrest Court SE Salem, OR 97306 503-378-3956	Willamette River Crossing Capacity Study Task Force (1999)
Linda Bierly	West Salem Neighborhoods	2308 Ptarmigan Street Salem, OR 97304 503-362-6860	SKATS Committee (August 2000)
Lucia Norris	SKATS Pedestrian Interest	170 Superior Street SE Salem, OR 97302 503-378-4128	SKATS Committee (August 2000)
Margie Monk	Eola Inn	1265 Acacia Drive S Salem, OR 97302	Other Contacts (October 2001 or unknown dates)
Mark Cusick	Keizer Chamber of Commerce	PO Box 21344 Keizer, OR 97307 503-585-1677	Willamette River Crossing Capacity Major Investment Study Task Force (March 1999)
Martin Gage	City of Salem	2115 Bruce Street NE Salem, OR 97303 503-363-0017	Willamette River Crossing Capacity Study Task Force (1999)
Michael Kerr	Capitol Farms, Inc.	9015 Windsor Island Road N Salem, OR 97303	Highway 22W Corridor Planning

			Citizens Advisory Group
Mike Guyer	Marion-Polk Building Industries Association	2865 Grayhawk Court NW Salem, OR 97304 503-362-8676	Willamette River Crossing Capacity Major Investment Study Task Force (March 1999)
Mike Sauerwein, City Manager	City of Sheridan	120 SW Mill Street Sheridan, OR 97378	Highway 22W Corridor Planning Citizens Advisory Group
Nick Fortey	West Salem Traffic Chair		Policy Committee (August 2000)
Orella Chadwick	Tillamook Farm Bureau	7650 Fairview Road Tillamook, OR 97141	Highway 22W Corridor Planning Citizens Advisory Group
Paul Thorp	Polk County Farm Bureau	16750 Airlie Road Monmouth, OR 97361	Highway 22W Corridor Planning Citizens Advisory Group
Phil Cogswell	City of Salem	3537 Homestead Road S Salem, OR 97302 503-585-4650	Willamette River Crossing Capacity Study Task Force (1999)
Phil Walker	Polk County Agriculture	4789 Brush College Road NW Salem, OR 97304 503-585-6437	Willamette River Crossing Capacity Major Investment Study Task Force (March 1999)
Ralph Blanchard		750 James Howe Road Dallas, OR 97338	Highway 22W Corridor Planning Citizens Advisory Group
Randy Franke	Marion County		Policy Committee (August 2000)
Randy Morgan	Salem Area Mass Transit District Senior and Disabled Consumer Advisory Committee	1115 Madison Street NE #513 Salem, OR 97303	Willamette River Crossing Capacity Major Investment Study Task Force (March 1999)
Randy Osman	Polk/Marion-Salem Tourism Alliance	PO Box 1 Falls City, OR 97344	Highway 22W Corridor Planning Citizens Advisory Group
Rich Guadajno	US Fish and Wildlife Service, Baskett Slough	10995 Highway 22 Dallas, OR 97338	Highway 22W Corridor Planning Citizens Advisory Group
Robin Barney	Salem Downtown Association	350 Commercial Street NE Salem, OR 97301 503-371-4000	Willamette River Crossing Capacity Major Investment Study Task Force (March 1999)

Robin Roberts	OR Economic Development Department	775 Summer Street NE Salem, OR 97310	Highway 22W Corridor Planning Citizens Advisory Group
Ruyji Torihara	Tokyo International University	PO Box 14040 Salem, OR 97309	Highway 22W Corridor Planning Citizens Advisory Group
Scott Cantonwine	Cascade Warehouse, Inc.	1625 Front Street NE Salem, OR 97303	Highway 22W Corridor Planning Citizens Advisory Group
Sonny Ortiz	Hispanic Representative	3180 Center Street NE Salem, OR 97301 503-399-3440	SKATS Committee (August 2000)
Susan Adams	Bonneville Power Administration	86000 Hwy 99 South Eugene, OR 97405	Other Contacts (October 2001 or unknown dates)
Ted Litchfield	SKATS Bicycle Advisory Committee (BAC)	1483 Brenner Street NE Salem, OR 97301 503-581-3086	SKATS Committee (August 2000)
Terry Kelly	Salem Downtown Development Advisory Board	PO Box 5588 Salem, OR 97304 503-362-3601	Willamette River Crossing Capacity Major Investment Study Task Force (March 1999)
Tim Kirsch		317 Juniper Lane Lyons, OR 97358	Highway 22W Corridor Planning Citizens Advisory Group
Tom Fenel		48278 Kingwood Avenue Mill City, OR 97360	Highway 22W Corridor Planning Citizens Advisory Group
Tom Ritchey	Polk County	Polk County Courthouse Dallas, OR 97338 503-623-8173	Policy Committee (August 2000)
Tony Nielsen	City of Salem Planning Commission		Salem Joint Advisory Subcommittee on Transportation (JASC) (August 2000)
Wayne Lierman, Chair	North Santiam Hwy 22 Association	1015 West Regis Stayton, OR 97383	Highway 22W Corridor Planning Citizens Advisory Group
Wayne Trucke	City of Keizer Neighborhoods		SKATS Committee (August 2000)
Wes Bennett	City of Salem Councilor		Salem Joint Advisory Subcommittee on Transportation

			(JASC) (August 2000)

Printed Materials

OR 22 EXPRESSWAY MANAGEMENT PLAN
FACT SHEET

FUNDING

- Key No. 13188 (obligated in 2003) $3,000,000
- Key No. 13591 (obligation sched. 2009) $1,060,000
- SAFETEA-LU Earmark $2,500,000
  (NOTE: will be put in STIP once it is incorporated into the MTIP)

SCOPE

- Project limits are the railroad overpass east of Rickreall east through Doaks Ferry Road on OR 22 (Willamina-Salem Highway)
- Intent is to develop a plan to implement the "expressway" designation of the highway. This includes access management, intersection improvements, and land use.
- OR 22 in the study area is a high speed expressway with several public and many private access points. Speed and number of accesses have been identified as one of the causes of safety issues in the corridor. There are two top 10% SPIS sites in the study area (OR 22/51 intersection and Doaks Ferry Road intersection)
- Development of a purpose and need/problem statement and a scope of work for the plan was started in **Spring 2002**. The Project Management Team, comprised of ODOT, Polk County, City of Salem, SKATS, and FHWA participated in development of, and approved the scope and problem statement. All agreed the plan was a necessary precursor to any environmental process – especially when we hadn't done enough analysis to identify a project to start an environmental document on.
- A public open house to present alternatives and gather public comments was held in **October 2004**.

SCHEDULE

- Region 2 negotiating scope of work with CH2M-Hill to complete the expressway management plan. Execution of the work order contract expected by **October 15, 2006**
- Public involvement session to present the staff-recommended alternative – **January 2007**
- Draft plan prepared and ready to begin local adoption process – **April 2007** (*this includes adoption by SKATS and incorporation into the RTSP*)
- Adoption of final plan by OTC – **August 2007**

LOCAL INVOLVEMENT

- Polk County Public Works Director has requested to be involved in development of scope of work. We will accommodate that request.

- Polk County, City of Salem, and SKATS staff have been and will continue to be members of the project management team that will guide development of the plan
- Regular updates will be provided to the Polk County Commission and other elected officials through e-mail messages and in-person meetings.

<u>ADDITIONAL TASKS/COSTS</u>

- Environmental Assessment for OR 22/OR 51 interchange
    - Cost estimate - $300,000-$500,000
    - Time to complete – up to 36 months

(NOTE: cost and time estimate provided by Norm Rauscher/Elton Chang)

- EA can be started anytime after local plan adoption process completed
- IAMP will be prepared concurrently
- Interchange is within the MPO boundary and will, therefore, be subject to financial constraint requirements

We need your help!

The Oregon Department of Transportation (ODOT) is developing an Expressway Management Plan for the portion of Oregon Highway 22 from Doaks Ferry Road to Greenwood Road.

We need your input to determine proposed improvements along Highway 22.

Stop by and learn more about the Expressway Management Plan and tell us what you think.

Transportation Open House for the Highway 22 Expressway Management Plan

Thursday, September 30, 2004

3 p.m. to 7 p.m.

Eola Bend RV Park
4700 Salem-Dallas Highway

Oregon Department of Transportation

If you have any questions or need additional information, please call Dan Fricke, ODOT Project Manager (503) 986-2663 or Mark Fancey, Mid-Willamette Valley Council of Governments (503) 588-6177.

The location of the of the frontage road north of Hwy 22 directly affects me.

I would not favor the "blue alt" because this would run right through my house.

Utilizing Second Street as the frontage road would be ok. The red alternate.

I am also in favor of Hwy 22 access points closer to Doakes Ferry Road going east and west.

Don Schrecher
4535 Salem Dallas Hwy NW
Salem OR 97304

Greenwood: Right in, right out, east and westbound. A thought to consider – when Hwy 51 construction begins if Greenwood is already in place the 4-way access would be a excellent conduit to detour traffic off Hwy 51 to 22. Not that I personal desire such traffic, but would be an excellent facilitator of traffic with great amount of safety to construction workers and drivers alike.

Hwy 51: Folded standard looks good and something that would be in budget with least amount of negative impact to current business and residents. Folded diamond looks very good as well. No doubt a increased cost but would appear to be best long term design to benefit the community as a whole.

Brian & Johanna Hewitt
525 Greenwood Road

I like the red frontage road. Having access to 50th street via the frontage road would be safe for our up and coming (children) drivers. Going to school in West Salem. Or combo of blue and red running in front of our driveway.

Jennifer Pittman
5149 Dallas Hwy NW
Salem

I understand the following options at Greenwood are being considered.

1. No overpass, blocking access from north and south. This option is not workable. It is extremely inconvenant for south Greenwood and completely land locks north Greenwood. There are farms that operate both sides of the Highway and causes them to travel about 10 miles to cross to highway.

2. No change. If live of no value this is ok.

3. Overpass with on, off ramps from east and west. This is Cadillac but off ramp from west and on ramp going east are already serviced on Rickreall Rd.

4. Overpass with exit from the east is workable.

Kenneth B. Quiting
815 Greenwood Rd S
Independence, OR 97351

I'd like to thank you for having this informational meeting. I certainly understand that ODOT can not solve the world problems. But I would like to suggest as a part of the process that current changes in land use and infrastructure be a more active part of the process. These are life changes concepts and need to be more refined than simply ideas or conceptions. Sincerely,

Pat Williams
320 55th Ave NW
Salem OR 97304

I am writing these comments regarding the Greenwood Rd interchange at Hwy 22. While data may not support that this point is a "safety concern", it in truth is such a point. In my opinion, this will bear out once the 22x99 interchange at Rickreall is completed. I strongly support a Greenwood road overpass with in/out access. In addition, emergency/rescue vehicles must have access to both North and South Greenwood Rd.

If ODOT decides to close Greenwood Road to Hwy 22 access or leaves things the way theya re, I would not stay. The current safety issues at this site already have me wondering, "why live here?"

Richard Regan
820 Greenwood Rd
Rickreall OR 97371

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1. North frontage should go straight into interchange. (22/51) not up 52nd and down 55th.

2. East bound ability to turn north on Doaks Ferry is essential.

3. Access at Greenwood is essential in addition to overpass. West bound traffic needs to be able to get over to Rickreall Rd.

Phil Walker
580 Main Street 4780 Brush College Rd NW
Dallas OR 97338 Salem OR 97304

Regarding your plans for a frontage road. I am hoping you can stay close to the hiway. But if not please consider using Aster St NW which is already available. I have lived and worked as a professional horse trainer at Holiday Rose Ranch for over 25 years. I hope to continue with my stable and living until I can no longer function. Please let our neighborhood stay somewhat calm and keep the frontage road form going to 52 or 55th. Sincerely,

Marty Brown
410 55th Ave NW
Salem OR 97304

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1. For us it might be more attractive to go up Orchard Hts. Rd to get to West Salem than to go thru what could be a confusing use of frontage roads to get on Hwy 22 east bound. If others opted for the same the load on Orchard Hts. Might increase more than it can easily handle. Any estimates made on this scenario?

2. I don't understand how folks on Greenwood Rd can easily get to Hwy 22, either east or west bound. What did I miss?

Dick and Nancy Daniel
980 Oak Grove Rd NW

Appreciate the education but I'm 80 years old and would hope to have the couple of houses considered but will try to understand the costs.

I have a home at 4383 2nd NW in Old town plat of Eola. Entrance now to Hwy 22 form Shaw Street certainly needs help to enter 22 and turn is close to curve of Hwy 22 and appears dangerous. We use the exit to Hwy next to the Schoolhouse as it is westerly from Shaw and gives us a bit more clearance. The alternate access just north of Hwy would be more suitable. Old 2nd Street is very close to our front. Appreciate the opportunity for comment!

Robert Groves
3100 Turner Rd SE #326
Salem OR 97302

We don't like closing 50th Ave at Hwy 22.

Why not make 50th Ave right in and right out only similar to Oak Knoll Golf Course by adding a wider off ramp to 50th.

It's a straight section of Hwy 22 supporting several acres of industrial zoned businesses on 50th plus several subdivisions.

At least have a frontage road form the Hwy 51 interchange back to 50th without having to go way north on 55th St. Good luck.

Bob and Roxanne Weirick
651 50th Ave
Salem OR 97304

Own 4344 Salem Dallas Hwy and 4300 Salem Dallas Hwy.

In favor of access road right next to Hwy22, but this does not give access to Doaks Ferry Rd.

There for you have to build access road below (blue dashes) which does not give access to either 4344 or 4300 Salem Dallas property.

William Jeskey
14620 Kings Valley Hwy
Monmouth OR 97361

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1. Frontage road looks good

2. must include 55th

Gerald Freeman
3750 Oak Grove Rd
Rickreall OR 97371

Re: North Frontage Road options

I am concerned about the elimination of access to Doakes Ferry north by west bound traffic on Highway 22 as the drawings now indicate. This will force unnecessary traffic of a significant count either to go past Doaks to the proposed new interchange, then proceed east bound to Doaks Ferry, or worse year to the local traffic and other traffic who become familiar with this problem to access areas formerly accessed by this intersection via local West Salem streets atop the hill to the north, sending unnecessary traffic on minor collectors.

The issue of the Willamette Greenway was brought up as a reason for the current approach, viewing the park as "untouchable." I have worked with the Willamette Greenway overlay zone in my work pertaining to Chemeketa's property on Doaks, and it is <u>not</u> unapproachable. Use fo this land would provide a safe ramp from 22 to Doaks north. Another alternative would be to move the structure further west, and not using the park property for the ramp. This would have a minor benefit in moving the exit further from the curve in 22 east of this intersection. Eliminating west bound access to Doaks/forcing traffic to a frontage road 1.5 miles past would be a serious mistake. This land accessed by Doaks will probably be inside the UGB someday,

and that would force significantly larger numbers of vehicles on the frontage road. The issue of future growth and its impact on this proposal needs more attention. Not good to force traffic to choose minor collectors.

Jerry Vessello, Director of Facilities
Chemeketa Community College
PO Box 14007
Salem OR 97309-7070
vess@chemeketa.edu
503-399-2590

I believe a clover leaf interchange at 50th, State Farm Road and Hwy 22 with frontage roads to feed from Doaks Ferry Rd, Independence Hwy and 55th would be more economical than 2 interchanges and would serve everyone better.

William l. Knorr
PO Box 5267
Salem OR (7304

See about the possibility of getting rid of the park at Doaks Ferry and Hwy 22.

Dale Gilson

Open House Comments from Stations

GREENWOOD TO OAK GROVE

- Construction of Rickreall Interchange will eliminate gaps. Greenwood safety issue.
- General support for overpass with right in/out access to highway
- Life safety access issues
- Provide full move access at Rickreall Rd. during construction of 99W
- Interchange at Greenwood – close Rickreall Rd.
- Need illumination and better delineation at Greenwood

OAK GROVE TO DOAKS FERRY

- Blue alt – affects stable facility and several residences – 35 year resident

INTERCHANGE OPTIONS OR 22 AT OR 51
[included sketches of options]

- Slide flyover SB and maintain Hwy 51/22 intersection
- Bypass to south from west of Oak Grove to Eola (leave 22 for local access)

E-MAILS FROM ODOT STAFF

-----Original Message-----
From: SWANSON Bill T
Sent: Friday, October 01, 2004 7:39 AM
To: FRICKE Daniel L
Cc: BELLEQUE Kent R; AMADOR Kelly L; JAMES Derryl D
Subject: Hwy 22 open house (Thursday 30th)

Hello Dan,
Here is what I was hearing at the open house.

1. Doaks Ferry rd needed to have access from west Salem (not closing) along with the over crossing structure.

2. No concrete barriers w/o having frontage roads in first (Their concerns are that maint. would start putting in median barrier w/o notice, like they did down the road)

3. Too far out of direction and business would be forced out. (several mention the up coming ballot measure: property rights)

4. The frontage (n side) is not in the right place, takes out too many business and homes, did not want it in there front yard.

Other than few heated discussions on access control, median barrier and out of direction, it went pretty good.

It will be interesting comparing there written comments with what they where voicing.

-----Original Message-----
From: BELLEQUE Kent R
Sent: Friday, October 01, 2004 8:20 AM
To: FRICKE Daniel L
Cc: AMADOR Kelly L; JAMES Derryl D; SWANSON Bill T
Subject: RE: Hwy 22 open house (Thursday 30th)

Dan/Kelly

Noted comments from the interchange station

* Reroute Highway 22 south of the existing Hwy 22 between Oak Grove Road and around the Eola Inn location. This would allow the existing Hwy 22 to serve as the frontage road.

* Move the flyover interchange to the South (along Hwy 51) and keep the intersection of Hwy 51/55th/Hwy 22 open for left turns at Hwy 51 for the moves that are not included in the flyover.

Verbal Comments

* As Bill mentioned there was discussion on not installing a median. I sent the gentleman your way Dan on the median being installed "over night". I am not sure if this is the same person that made the comment at each station but it is a valid comment. In project team meetings we did discussed the short term option of installing a median with u-turns at certain locations, knowing that we would like to do more (interchange) but available dollars may not allow a more longer term solution

* Some people like that flyover, but didn't realized that 55th and other movements were not allowed. Still, one person thought that other roads could be used to accommodate the frontage road and 55th traffic that would not be able to get to the interchange.

* Most people that voiced a preference like either the standard diamond or the folded diamond that fits the traffic projects. There were a couple comments about the impact to the orchards with some of the interchanges.

* A lot of people wanted to know when the project would be built.

From a interchange standpoint, I spent quite a bit of time showing people how the interchange would work and that the interchange options shown fit in with the frontage road concepts at the other station. Some people thought the on and off ramps were the frontage roads. After

explaining the interchanges and how they worked, many of my visitors understood how the interchanges fit with the frontage road ideas.

Overall- I though the open house went well. Many people were thankful for the opportunity to come and see what was going on.

Kent

-----Original Message-----
From: AMADOR Kelly L
Sent: Friday, October 01, 2004 7:46 AM
To: SWANSON Bill T; FRICKE Daniel L
Cc: BELLEQUE Kent R; JAMES Derryl D; CALLAWAY Regina A
Subject: RE: Hwy 22 open house (Thursday 30th)

I agree with Bill. I heard a lot about no concrete barriers and a lot of concerns about the barriers being installed without any notice to the public. I also heard people wanting the overpass at Greenwood but with access to the highway.

I thought we had a good meeting and a good turn out. The last time I counted there were over 60 people signed in.

I too am interested in see the comments.

Project Summary Sheet
for the
Highway 22 Expressway Improvement Project
February 16, 2001

The project would include the creation of a divided highway from the Willamette River to Highway 99W (including the Dallas Cutoff). Local roads and frontage roads will funnel local traffic to intersections at Highway 99W, Highway 51, the West Salem interchange near Eola Drive, and a new interchange serving the College Drive area on the western edge of Salem. The project will include the construction of roadway connections to serve local businesses and residential areas.

This action will prevent accidents that frequently occur from turning movements and local traffic entering the highway. A complete list of improvements and the optimal alignments of the local access roads will be fully developed as the project progresses. Based on the preliminary investigations of the corridor, the improvements currently listed are the best option for achieving the project goal of saving lives. Oregon Department of Transportation (ODOT) and stakeholders from the local area are currently developing a Corridor Refinement Plan that will develop improvement scenarios and evaluate them for safety, transportation, and cost effectiveness.

The anticipated improvements include:

- **Centerline Barrier:** Placement of a concrete centerline barrier to prevent accidents due to vehicle crossover into opposing traffic. Removal or revisions of existing accesses to provide connectivity to local roads rather than directly onto the expressway.
- **West Salem Improvements:** Construction of an interchange at a new intersection of Highway 22 and College Drive. Construction of frontage road improvements to make the connections to surrounding neighborhoods. Removal of direct access to the highway from several local streets serving West Salem. Selected improvements to the existing West Salem streets to provide better connectivity between Eola Drive and Wallace Road to Highway 22.
- **Improvements at the intersection of Highway 22 and Highway 51:** Construction of an interchange at the intersection of Highway 22 and Highway 51 including frontage road improvements to make connections to surrounding neighborhoods.
- **Greenwood Road:** Construction of an overpass "fly-over" bridge at Greenwood Road to allow local traffic and farm equipment to safely cross Highway 22.
- **Improvements at the intersection of Highway 22 and Highway 99W:** Construction of an interchange at the intersection of Highway 22 and Highway 99W including the intersection of Highway 22 and Dallas-Rickreall Highway 223 (Dallas Cutoff). Improvements within the community of Rickreall on Highway 99W including the Rickreall Road intersection.

These improvements will reduce life threatening, high-speed, turning movement conflicts by converting these intersections from unsignalized "rural" intersections to "expressway" intersections which are appropriate for the traffic volume.

Thank you for your consideration and support on this critical effort. Questions can be directed to Mike Propes of the Polk County Board of Commissioners 503-623-8173, or Tony Snyder, Polk County Public Works Director at 503-623-9287.

HIGHWAY 22 TASK CHECKLIST

TASKS & SUBTASKS	MY VISION (OF COG WORK)	COMMENTS
in GIS format		
Future Case analysis based on SKATS EMME/2 model in the MPO. 2025 no-build scenario	Yes	Double check with Dorothy, but Dan's assumption is just basic information. Do a quick check with the City/County to see if there are any development proposal in progress, but otherwise do not make any assumptions about what the corridor will look like as far as development. A big box store on Hutmaker's property(City's feel?) No V-Sim
Alternatives Identification	ODOT. COG participates in discussions only	
Alternatives Evaluation	ODOT. COG participates in discussions only	
Plan Packaging (COG Lead)		
Write Plan	COG	
Draft Refinement Plan -- 50 black & white copies	COG	
Produce Electronic Version	COG	See I-5 Conditions Report. Mike has the CD. Expectation is a mini-version (less elaborate). Lori & Sandra alerted for a few months from now. Lori has been to school on this. Dan wants a meet with Terry Cole, Mark Fancey and Rob & I to coordinate the Rickreall electronic version. Expect many aerial views. When making up figures (see mapping above) Consider that work will be in PDF format for Adobe Acrobat.
Final --25 color copies	COG	
Adoption	ODOT	We may have to show up at meetings to hold ODOT's hand, and maybe do preliminary findings, but otherwise nothing
Agreement No. 18239 expires on 30 June, 2001		Expect renewal to begin NLT 1 June. Will wait to be surer of what is needed. At this time only a date change is anticipated, so change can be done quickly.

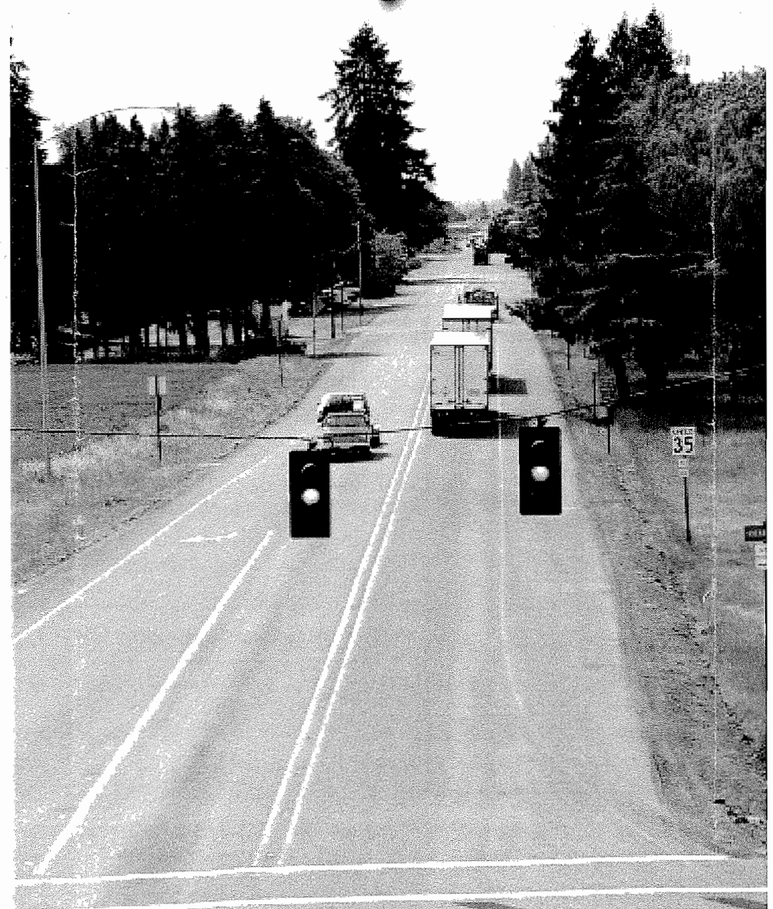
Project Goals

The Technical Advisory Committee also developed goals for the Rickreall Junction project. The goals are based on the Oregon Transportation Plan and the Oregon Highway Plan approved by the state Transportation Commission. Local citizens and the Polk County Board of Commissioners have reviewed these project goals.

- Meet Oregon Highway Plan Mobility Policy to ensure efficient traffic flow.
- Meet Oregon Highway Plan Major Improvement Policy to ensure that the project is properly sized to meet travel demands for the next 20 years.
- Meet Oregon Highway Plan Access Management Policy to the maximum extent possible. This includes controlling highway access and using medians to ensure that intersections and interchanges operate safely and efficiently.
- Meet Oregon Highway Plan Safety Policy.
- Meet ODOT Highway Design Manual standards or agree on design exceptions.
- Minimize impacts on Rickreall and adjacent farm and sensitive lands. Provide for off-highway traffic circulation according to Oregon Highway Plan policy.
- Minimize overall costs including engineering, right of way purchasing and construction.

Notes:

Rickreall Interchange Project



Willamina - Salem HWY
Pacific West HWY
Dallas-Rickreall

Department of Transportation (ODOT)
Rickreall Junction Interchange Project — Open House Overview June 11, 2002

The Rickreall Interchange project Open House is designed to:

- Show the design options for improving the intersections of Ore. 22 with Ore. 99W and Ore. 223.
- Listen to your concerns and answer your questions about the design options.
- Gather your comments to help ODOT with a final decision about what to design and build.

There are four information stations — one for each design option.

- The stations have pictures and handouts about the interchange design options.
- Please use the handouts to compare the design options as you go from station to station.
- ODOT staff is available at each station to answer your questions.

Please take the time to look at and learn about each option. Then tell us which option you prefer and why.

- After considering all the options, please use a comment form to tell us which you prefer and why you feel it is the best solution for Rickreall and for travelers on Ore. 22, Ore. 99W and Ore. 223.
- Please place your comment form in the comment box before you leave.
- If you prefer, ODOT staff can take notes for you.

Project Background

The Polk County Transportation System Plan identifies Ore. 22 and Ore. 99W as principal arterials (major roads).

- The plan identifies needed road projects. The plan includes building an interchange at the Ore. 22-Ore. 99W intersection and at the Ore. 22-Ore. 223 intersection.
- The Ore. 22 Corridor Strategy developed by ODOT in 1997 also identifies the long-term need for these improvements.

Ore. 22 is the primary route connecting Salem-Keizer and the mid-Willamette Valley to the Oregon coast, including Lincoln City and Tillamook.

- Recreational travelers, industrial and commercial businesses, local farmers and businesses all use Ore. 22.
- The corridor also is a vital link for area residents who need health care and emergency services and for commuting to jobs in Salem and Corvallis.

A Technical Advisory Committee helped to develop an approach for addressing the problems at these intersections. The TAC included local, state, and federal officials. The committee developed the following problem statement:

- "The intersections of Ore. 22 with Ore. 99W and the Dallas Rickreall Highway are experiencing a high number of accidents typically associated with traffic signals and high-speed turning movements on rural highways. Left as is, this problem is expected to worsen as traffic volumes increase. Current traffic volumes exceed Oregon Highway Plan mobility standards. It is expected that traffic volume growth will continue to reduce operational performance, causing operational failure during the 20-year planning horizon. The entire Ore. 22 corridor from Salem to Dallas suffers from current safety problems and will suffer from future safety and mobility problems. The problem is too big to be addressed all at once and must be solved incrementally. The problems at Ore. 22, Ore. 99W and the Dallas-Rickreall Highway, by state and local consensus, are the most immediate of these incremental challenges."

Design Options

ODOT staff met with Rickreall residents and area business owners last year. At that time, the design options that best addressed the identified problems were freeway-type interchanges.

- Many people said they would like to see a traffic signal on Ore. 99W as part of the design. They believe that a signal would cause gaps in traffic using Ore. 99W through town, making it easier to cross or enter the highway.
- Installing a traffic signal at the southern ramp terminal on Ore. 99W originally was considered to address this concern.
- ODOT engineers have since determined that this traffic signal would not meet engineering standards.

A recent development is that a diamond-style design for the Ore. 22-Ore. 99W interchange has been reconsidered and added back to the design options. This is an alternative to looping ramps.

- With a diamond ramp, a traffic signal is justified on the off-ramp from Ore. 22 westbound to Ore. 99W. This signal would be at the ramp north of the interchange.

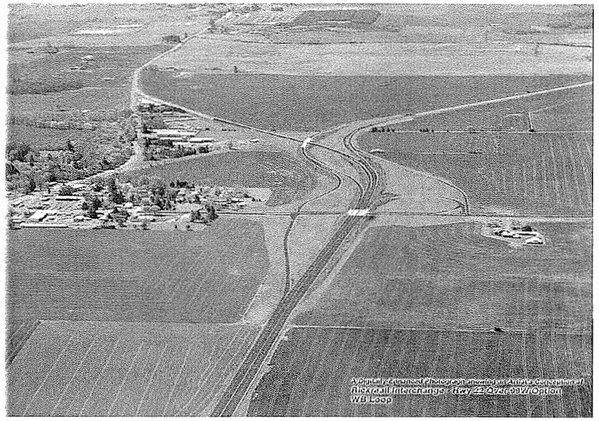
Last year, people also favored designs that carried Ore. 22 over Ore. 99W, rather than having Ore. 99W go over Ore. 22.

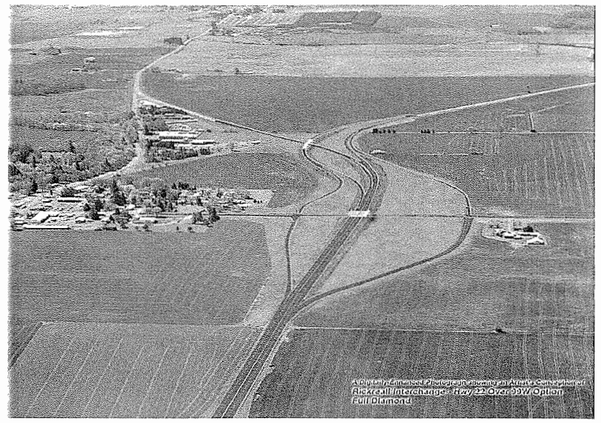
- Building Ore. 99W over Ore. 22 would result in southbound traffic on Ore. 99W approaching Rickreall on a downhill grade.
- ODOT also has determined that construction costs would be lower if Ore. 99W cross over Ore. 22.
- Some cost savings may also be possible with a diamond ramp option for Ore. 99W going over Ore. 22 if the interchange has to be upgraded in the future.

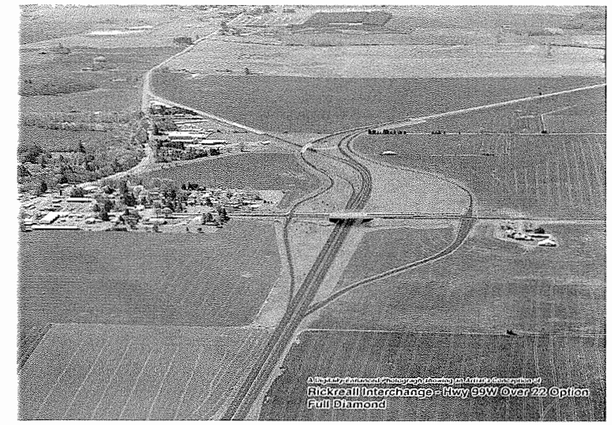
These possible changes in the designs previously presented to the community are shown and described in more detail at each of the information stations.

- Please keep these differences in mind as you consider the merits of each design option.
- Please remember to write your comments and concerns on the comment form and to turn it in before you leave the Open House today.

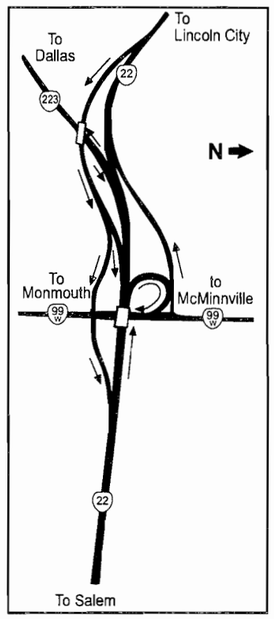
Thank you.





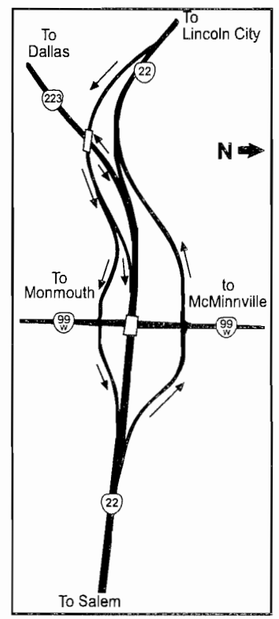


Ore. 22 Over - WB Loop Exit Option



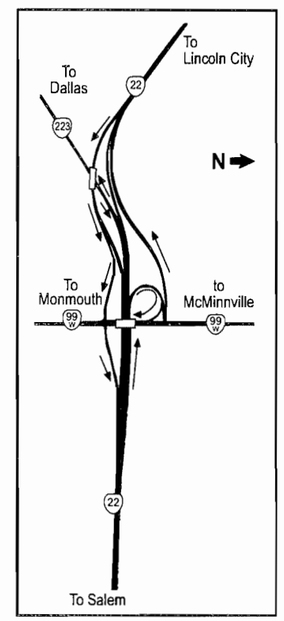
- Ore. 99W stays on its existing grade along its current alignment.
- Ore. 22 is rebuilt to north of its current alignment.
- Parallel deceleration lane and loop exit to Ore. 99W.
- Left exit to Ore. 223, with both Ore. 22 traffic lanes continuing toward coast.
- Two foot narrower median and shoulder widths on Ore. 22.
- Raised median between Church Street and the southern ramp terminal.

Ore. 22 Over - Full Diamond Option



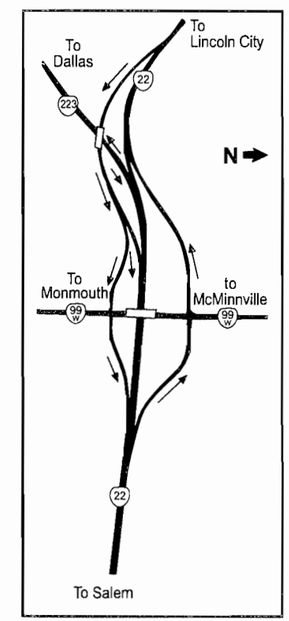
- Ore. 99W stays on its existing grade along its current alignment.
- Ore. 22 is rebuilt to north of its current alignment.
- Two foot narrower median and shoulder widths on Ore. 22.
- Raised median between Church Street and the southern ramp terminal.
- Includes traffic signal at northern ramp terminal.

Ore. 99W Over - WB Loop Exit Option



- Ore. 22 stays on its existing grade along its current alignment.
- Ore. 99W overpass returns to its existing grade at the north edge (approximately) of elementary school .
- Additional design features like landscaping and pedestrian lighting along Ore. 99W are included to help slow down traffic coming into Rickreall from the overpass.
- Raised median from north of the interchange to Church Street.

Ore. 99W Over - Full Diamond Option

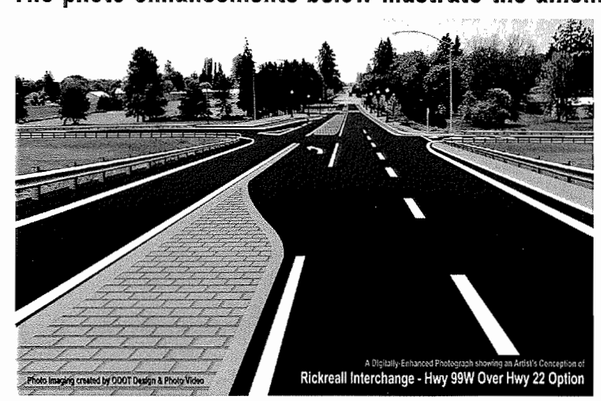


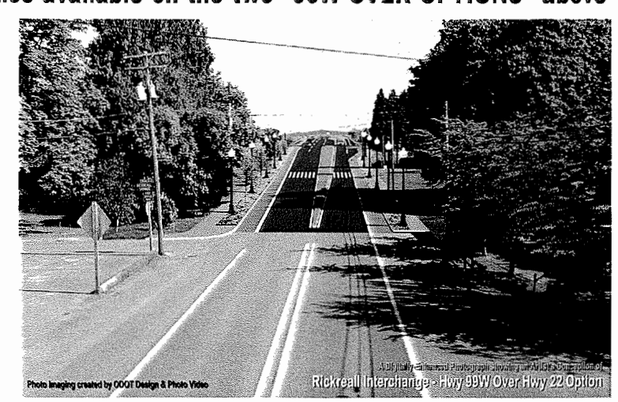
- Ore. 22 stays on its existing grade along its current alignment.
- Ore. 99W overpass returns to its existing grade at the north edge (approximately) of elementary school.
- Additional design features such as landscaping and pedestrian lighting along Ore. 99W are included to help slow down traffic coming into Rickreall from the overpass.
- Raised median from north of the interchange to Church Street.
- Includes traffic signal at northern ramp terminal.

All Options

- Improve safety by separating Ore. 22/Ore. 99W and Ore. 22/Ore. 223 traffic movements.
- Interchanges provide enough lane capacity to meet 20- to 25-year traffic demand.
- Provide improved school crossing with center-median pedestrian refuge area, enabling pedestrians to cross street in two stages (crossing just one direction of traffic at a time).
- Pageant Street is closed and converted to a cul-de-sac.
- Primary access to elementary school, Grange, and Mason Lodge will be provided by a new county road running north from Rickreall Road along the eastern community boundary.

The photo enhancements below illustrate the amenities available on the two "99W OVER OPTIONS" above





PMT #2-PROPERTY OWNER CONTACTS BRIEFING

February 23,2001

1. On 14 November 2000; I sent a letter to 31 businesses,2 groups, and 2 individuals (The PMT has these lists),. A few had incorrect addresses and were remailed, and three individuals have been added since the 14th as a result of neighbor's input. The letter to the Brunk House has been returned twice.

2. The letter mentioned the start of the plan, area under study, that data was being gathered, gave an idea of what type alternatives might be explored with an emphasis on access management, and asked recipients to contact me if they had special requirements they wanted to be sure the designers were aware of.

3. Eight people eventually contacted me, five of who felt they may have special requirements and/or ideas of what was needed. Ttheir comments were all forwarded via e-mail to the Green River Project Management Team. Dale Kittell of BPA and Dan Voight passed on information regarding large vehicle operations. Dean Freeborn had his comments on Greenwood Road. Clyde Aspenwall, Aspenwall Produce & Coffee Place, and Rich Rinehard, Chevron station passed on their concepts for what should not be done. The Pentacle Theater contact, Dave Davis, passed on his name as POC and Phillip Simmons (owns property next to Aspenwall) called with his name and contact information. One other, can't recall who, also called with a correction to his address

4. All of the interested people have been told that when alternative have been developed, and if they affect them, either myself or someone else from the PMT would sit with them one-on-one and discuss the alternative(s) with them. As one fellow said, *"I just want to be sure that I don't come to work one day and find barricades and people starting work, without me knowing about it."* I think that sums up the general sentiment on knowing what is going on. I have guaranteed them, that with the exception of regular type maintenance and repair, that won't happen.

    a. Along this line, I got a very worried call from Aspenwall one day referencing my assurances and concerned about a formally drawn out plan showing an interchange and other changes through his property. Turned out to be the option Tony is submitting to try and get funding for work. I believe Aspenwall is ok with that, now, but am not sure.

5. Generally, the public involvement is proceeding as outlined in the early e-mail suggestions sent to the PMT after our first meeting.

    a. However, there are always other efforts underway that are not directly aligned with the corridor refinement plan, and these inadvertently can cause credibility difficulties. Some of these can simply be discussions

with individuals about options, confusion over maintenance, efforts to obtain funding, fatality bandwagon drives (lots of articles/editorials/letters in Polk County newspapers about one meeting. study, or another). I have no infallible solution to preventing any public misconceptions, and, in fact in my opinion they will probably occur regardless of the number of contacts, or public blitz undertaken. It is best to simply remember that for every action there is a reaction , and to expect it.

6. On another aspect of the COG's work. We have made zoning maps for the area under study and provided a set to Erik for reference as needed during design. We also have a list of owners associated with each property, so as to be able to contact them when the time comes. Erik also has this list. The maps are generally no good for inclusion in a future document. It was necessary to make them very large to show the small lots and property that occur as one gets further east of the Hwy. 51intersection. I do have a copy (there are only two sets) with me if anyone is curious about certain areas.

Highway 22 Corridor
Greenwood Road to West Salem Bridgeheads Refinement Study

Draft Public and Stakeholder Involvement Process
10/25/01

Efforts to date:

- Wayne drafted a Public Participation memo on Aug 16, 2000
- Wayne sent out a letter (on COG letterhead) on 14 Nov 2000 to roughly 22 businesses describing the beginning of the study.
- Wayne did some follow-up with people who called him, has done some public outreach to businesses.

Where we go from here:

1. Develop up to 4 alternatives per the 4 segments - Ongoing
    a. Pacific overcrossing to Oak Grove
    b. Oak Grove Road to ODOT Weigh Station
    c. ODOT Weigh Station to PGE Substation
    d. PGE Substation to West Salem Bridgeheads

2. Map them and look for red flags - lots of work left to do
    a. PMT meeting to review this in early December?

3. January SKATS Policy Committee review – they don't meet in December

4. Public showing of initial alternatives (February)
    a. What were showing:
        i. Single line drawings over aerial photos – both feasible and non-feasible
        ii. Do we have separate short-term and long-term concepts?
        iii. ?? Matrix showing feasible and non-feasible evaluation
            1. E.g. Alternative 1.c is not feasible because of topography or wetland encroachment
    b. Locations were maps are posted
        i. Rickreal – Polk County Fairgrounds
        ii. Dallas City Hall
        iii. Post Office – West Salem, other
        iv. Grocery Stores? Roths in West Salem, Aspenwall, other??
    c. Newsletter # 1
        i. Send to 22 businesses on list, Groups, e.g. Polk Commisioners (see 8/16/00 memo for list)
        ii. Property owners – list of several hundred, (but need to find the electronic file)
        iii. Newsletter cannot show all alternatives, so it directs them to the locations

iv. Need to decide layout, text, budget for newsletter
v. Contact: Jaffe. What about Dan Fricke & Tony Snyder?

d. Web Page
   i. Need to decide if we have budget to simply list the locations or actually show the alternatives
   ii. Does web page ask for public input via a form or just an e-mail. E-mail's to Jaffe

5. COG - One-on-one personal visits or small group meetings with Businesses (and other land owners, as needed)
   a. May want Tony or Dan to help with these, at least the initial ones.

Erik needs to be there Terry Cole had [illegible] there for [illegible]

6. COG - Summarize Public Comment
   a. Summaries sent to PMT
   b. SKATS Policy Committee meeting to review initial alternatives and public comments

7. ODOT to develop draft recommended improvements for the 4 segments
   a. Short term and long term recommendations
   b. SOW calls for "functional plans" up to 2 alts. per segment — will be in Expressway Plan
      i. Refine layouts
      ii. Operational analysis
      iii. How long for ODOT PD and TPAU to do this? — look at Erik's scope
   c. PMT meeting

8. Public Showing of Draft Refinement Plan Recommendations (April? May?)
   a. New maps (at same locations)
   b. Newsletter #2
   c. Summarize public comment
   d. Work Sessions with:
      i. Polk Commissioners
      ii. Polk Planning Commission
      iii. SKATS Policy Committee
      iv. MWACT
   e. Briefs to:
      i. City of Independence
      ii. Polk County Mayors
      iii. West Salem Neighborhood Association
   f. Salem Staff to brief Salem Council and Commission

9. Final PMT meetings before production of Draft Plan

10. Production of Draft Refinement Plan - COG — This is what we [illegible] Salem + Polk approved
    a. Draft plan – 50 copies, black&white format

11. Final Refinement Plan – COG
    a. Final Plan – 25 color copies
    b. Electronic Version on CD

[illegible] start process to amend TSPs

Salem [illegible]
Polk [illegible]
[illegible]
[illegible]
to [illegible]

[illegible] Line Team (PBLT)
+ Region Planning Managers
+ Craig Greenleaf
Strict Review by this group. If they approve plan, then [illegible] will approve it.

MEMORANDUM

TO: Business Owners and Operators-Highway 22

FROM: Wayne L. Rickert Jr

SUBJECT: Corridor Refinement Planning 14 November 2000

This note is to let you know that the Oregon Department of Transportation is beginning a corridor refinement plan for Highway 22. The corridor refinement process will determine the highway's twenty-year needs and document the solutions needed. The corridor refinement plan is the follow-on step to the interim strategy completed a few years ago. The refinement plan is scheduled to be complete by 1 July 2001.

The portion of the highway covered by the plan is from the overcrossing (by the dairy's lagoon) of the railroad east of the 99W/22 intersection to the west end of Salem's Willamette River bridges.

Soon you will notice crews gathering traffic information to update data on the number of vehicles on the highway and which direction they travel. The information may be gathered a variety of ways; automatic counting with tubes across the highway and/or connecting streets, visual observations, and possible, but not planned at this time, surveys. This is likely to be the only obvious early signs of the planning process.

But, gathering raw traffic data is not the only work underway. Among other tasks, accidents will be analyzed, traffic volumes projected to twenty-years, and congestion analysis accomplished. The highway will be divided into sections for determining solutions to problems, four solution alternatives for each segment will be developed and from those, the preferred solution determined.

So, what can you expect from this plan? Its difficult to predict for every place along the highway, but there are only a limited number of successful ways to solve the kinds of problems the highway has and is expected to have. Based on my experience, I anticipate some of the solutions could involve horizontal sight distance improvements, medians, interchanges, and access management. Horizontal sight distance improvements are those which allow vehicles to see and be seen further away, especially at intersections. Medians are the dividers between

opposing traffic. There are traversable medians and non-traversable. Non-traversable prevent crossing over, into or in front of opposing traffic. Interchanges are well known to everyone, and there are different types. Some of these types are relatively inexpensive and used at places with fairly low numbers of entering and exiting traffic. Other are used in areas, usually urban, with high numbers of vehicles.

I want to discuss access management separately because it is anticipated to be a significant part of the work and one which could potentially involve you directly. A few months ago this portion of Highway 22 was designated as an Expressway. Other than Interstates, Expressways have the toughest policies regarding accesses. Access management is the also usually the most inexpensive way to solve accident and some congestion problems. Almost all of you have businesses connecting directly to the highway. The others connect close to the highway by using an intersecting road or street. I would expect that many accesses will be planned to someday be closed, or rerouted. Any that are closed will have to leave some way for getting vehicles to the highway. That is usually accomplished by using a local street system, either existing or by constructing frontage roads. For many of you, this will not be a problem, but for others because of the nature of the business or type of equipment used, it may present difficulties.

If you use large equipment or haul oversized loads please contact me so I can pass on that information to the people who will be developing alternatives. If you have other concerns please let me know of those as well. The folks working on the plan are experienced, and may have ideas about difficulties you will face, but sometimes the difficulties are not obvious or are overlooked. The earlier we are aware of potential pitfalls, the more opportunity we are given to avoided them.

You all drive the highway often so you are aware of the growth in traffic and difficulties getting onto the highway, the increasing accidents, and the need for improvements. But this is a twenty-year plan and the improvements identified during this process will not come quickly. The growing backlog of needed work around the state will cause delays in those that should be done soon, and other improvements are only needed as additional traffic growth occurs.

I do not expect we will have the first set of alternatives for each segment developed until very late winter or early spring. As we identify those alternatives, or are far enough along with them to believe they might affect you, one of the individual working on the project, probably me, will call and make an appointment to discuss the ideas being developed. Often this contact can result in making adjustments which benefit everyone. If there is a preferred person to contact, please let them know of the plan, and pass me their name and how I can reach them.

My address and phone number are on the letterhead. My e-mail is wrickert@open.org

Thank you

APPENDIX L

AMP Compliance with OAR 734-051-0155 (5)

APPENDIX L

Access Management Plan Compliance with OAR 734-051-0155 (5)

The table below indicates how the Access Management Plan, which is included in sections of the OR 22 (W) Expressway Management Plan, meets the requirements of OAR 734-051-0155 (5).

OAR 734-051-0155 (5) CRITERIA	HOW ADDRESSED IN EMP	WHERE
(a) Include sufficient area to address highway operation and safety issues and development of adjoining properties including local access and circulation.	The study area was defined as extending 6.73 miles from the Derry Overcrossing to College Drive and 1/4 mile on either side of the highway to address local development, access, and circulation issues. The termini of the study area adjoin previously completed or anticipated plan areas for OR 22.	Sec. 1.4.3 Figure 1-1
(b) Describe the roadway network, right-of-way, access control, and land parcels in the analysis area.	The roadway network, right-of-way, and surrounding land uses were identified and mapped, as were all affected accesses. These factors led to the plan's project improvement recommendations and to the identification and implementation of the Polk County land use measures and the ODOT access control measures.	Sec. 1.4 Sec. 5.2.1 Figure 5-2 Sec. 7.3 Figure 7-1, 7-2
(c) Be developed in coordination with local governments and property owners in the affected area.	This planning effort began in 2000, stopped in 2004, and was restarted in 2007. Previous and current efforts have included coordination with Polk County and City of Salem, and public outreach and meetings to the Farm Bureau, citizen involvement committees, and local property owners.	Sec. 1.4.4 Sec. 6.3 Sec. 7.1 App. A App. K
(d) Be consistent with any applicable Interchange Area Management Plan, corridor plan, or other facility plan adopted by the Oregon Transportation Commission.	The EMP includes a review of existing plans, policies, and standards that are relevant to the study area. Several of these plans have been adopted by the OTC. Planning efforts for this section of OR 22 have been cognizant of related efforts for other parts of the transportation system in West Salem, which are anticipated to eventually receive OTC adoption.	Chapter 3 Chapter 7 Sec. 8.4
(e) Include polices, provisions and standards from local comprehensive plans, transportation system plans, and land use and subdivision codes that are relied upon for consistency and that are relied	The EMP includes a review of existing plans, policies, and standards that are relevant to the study area, including local plans and codes. Based upon past practices, Polk County will likely adopt the EMP directly into its comprehensive plan, and take whatever actions are required by their ordinances and policies to authorize the proposed improvements.	Chapter 3 Chapter 8

upon to implement the Access Management Plan.		
(f) Contain short, medium, and long-range actions to improve operations and safety and preserve the functional integrity of the highway system.	The projects selected for development as part of the Preferred Alternative are the ultimate long-term actions identified to improve safety and operations at the intersections of Greenwood Road, OR 51, and Doaks Ferry Road with Oregon 22 in Polk County. A range of other actions taken by ODOT and Polk County through the adoption of this plan to control access and regulate surrounding land uses will be implemented in the short-term and mid-term, but have long-term benefits. Additionally, this plan identifies further planning opportunities for coordination with potential residential developments east of Doaks Ferry Road, outside and adjacent to the current study area, to address access and connection problems with OR 22 and the larger West Salem area	Chapter 5 Chapter 6 Sec. 7.2
(g) Consider whether improvements to local street networks are feasible.	Construction of a system of frontage and backage roads is proposed before existing accesses are closed. Such a system uses several existing local streets, extending some and closing highway access for others. Topographic constraints and acquisition costs were considered in developing alternatives.	Chapter 5 Chapter 6
(h) Promote safe and efficient operation of the state highway consistent with the highway classification and the highway segment designation.	The Problem Statement of the EMP addresses the function of an expressway. Goals and objectives for the study and alternative evaluation criteria included increased safety and efficient operation. The forecast analysis does show that improved safety and operations on OR 22 will be achieved through 2030 with construction of the improvement projects.	Chapter 2 Chapter 5 Chapter 6 App. J
(i) Consider the use of the adjoining property consistent with the comprehensive plan designation and zoning of the area.	An analysis of surrounding land uses and land use potentials was performed. This analysis resulted in recommendations for implementing access controls and minimizing impacts to commercial, residential, and resource zoned properties.	Chapter 5 Chapter 6 Chapter 7
(j) Provide a comprehensive, area-wide solution for local access and circulation that minimizes use of the state highway for local access and circulation.	The plan calls for a phased implementation of access controls as frontage and backage roads are constructed for local circulation and alternative access in the entire study area. Many private accesses will be closed and public road approaches reduced in number. Some farm accesses will remain open.	Sec. 7.3 Table 7-2

APPENDIX M

Polk County Adoption Ordinance

MEETING NOTICE

09-23-09 A11:49 IN

POLK COUNTY PLANNING COMMISSION
SEPTEMBER 29, 2009 AT 7:00 P.M.
POLK COUNTY COURTHOUSE
FIRST FLOOR CONFERENCE ROOM
850 MAIN STREET
DALLAS, OREGON

AGENDA

1. CALL TO ORDER AND NOTE OF ATTENDANCE
2. COMMUNICATIONS FROM THE PUBLIC ON ITEMS NOT ON THE AGENDA
3. MINUTES OF SEPTEMBER 15, 2009
4. PUBLIC HEARING ON LA 09-02
5. COMMUNICATIONS FROM THE COMMITTEE FOR CITIZEN INVOLVEMENT
6. COMMUNICATIONS FROM PLANNING COMMISSION
7. COMMUNICATIONS FROM PLANNING STAFF
8. ADJOURNMENT

MEMORANDUM

TO: Polk County Planning Commission

FROM: Ken Husby
Public Works Director/County Engineer

DATE: September 21, 2009

SUBJECT: Polk County Road System Functional Classifications and Recommended Changes for inclusion into the Polk County Transportation System Plan 2009 Edition.

At a recent Polk County Planning Commission meeting, the discussion included requests from constituents and members of the TSP Citizens Advisory Committee regarding the functional classification of several Polk County roads. Specifically, it was requested that two Local Roads, Reuben Boise Road and Pioneer Road be reclassified as Minor Collectors, or perhaps as Resource Roads. (Please refer to the attached excerpt from the Polk County Public Works Road Standards 1998 for a description of each road classification).

Neither Reuben Boise Road nor Pioneer Road should be classified as collectors. Each is a Local Road feeding traffic from abutting properties to Ellendale Road, a Major Collector in this area. However, it would be appropriate to reclassify Reuben Boise as a Resource Road, as it connects timber areas to Ellendale Road, which becomes a Minor Arterial east of James Howe Road. We propose to show Reuben Boise Road as a Resource Road on the Functional Classification Map within the 2009 TSP.

There are other recommended changes in functional classification we are recommending for the 2009 TSP. Please refer to the table below:

Recommended Changes in Functional Classifications for the 2009 TSP:

Downgrade	ADT*	From	To
Gage Road	91	Minor Collector	Resource Road
Gardner Road	183	Minor Collector	Resource Road
Enterprise Road	188	Major Collector	Minor Collector
Oak Grove Road *Orchard Hts to Farmer Rd*	326	Major Collector	Minor Collector
Rickreall Road *East of Greenwood Rd*	360	Major Collector	Minor Collector

*Average Daily Traffic (2007 & 2008)

Each of the downgrade recommendations are based on the low volume of traffic each road, which is too low to be classified in the current category shown.

Upgrade	ADT*	From	To
Bethel Heights Road	438	Local Road	Resource Road
Stapleton Road *Talmadge Rd to Helmick Rd*	848	Local Road	Minor Collector
Fire Hall Road	127	Local Road	Resource Road
Reuben Boise Road	271	Local Road	Resource Road

*Average Daily Traffic (2007 & 2008)

The Stapleton Road upgrade is based on the higher volumes it is now carrying, providing connectivity to a Major Arterial, OR99.

The Bethel Heights Road upgrade to a Resource Road is its connectivity to the agricultural industry, including Christmas tree farming, vineyards, and wineries.

We recommend your approval/endorsement of these changes to the TSP roadway classifictions.

FUNCTIONAL CLASSIFICATION

The classification of each roadway in the county road system shall be based on the function it serves at present and its anticipated function in the future. These functional classifications are as follows:

A. Principal Arterials are major urban and rural highways connecting communities, towns, and cities. The principal arterial provides for through traffic movement and distribution to lower order roadways. Direct access to abutting properties shall be limited and controlled. On roadway parking shall, in general, be prohibited. Principal arterial roadways fall primarily under state highway jurisdiction.

B. Minor Arterials connect areas of principal traffic generation to major urban and rural highways. The minor arterial network provides for through traffic movement to the major arterials and distribution into the network of collector and local streets. Arterials are subject to regulation and control of parking, turning movements, and access to abutting properties.

C. Major Collectors carry local traffic between neighborhood areas to arterial facilities. The major collector provides access from minor collectors to community services and to other neighborhoods within, or immediately adjacent to, urban areas. Major collectors may have controlled access to abutting property and controlled parking.

D. Minor Collectors serve as links between the local street system and the higher order roadways. Minor collectors carry traffic between minor traffic generators, such as neighborhood shopping and community centers and schools. Minor collectors may have controlled parking and controlled access to abutting property (see Standard Drawing 0033).

E. Resource Roads provide a connection between resource areas, and principal and minor arterials. These roadways are generally rural and provide access to agricultural and timber roadways, to facilitate movement of goods and services. Resource roads provide an important and needed function in serving areas that contribute to the economic base of the community even though they may have low volumes of traffic.

F. Local Roads and Streets provide direct access to abutting property. Through traffic will be discouraged on local streets. Curb-side parking will be permitted on streets that have a 34 foot wide roadway (see Standard Drawings 0007 and 0040). In urban areas, parking along local roads may be permitted if there is a 7 foot wide parking strip located beyond the shoulder (see Standard Drawing 0040).

The terms "urban" and "rural" are used in conjunction with functional classification designations to denote the location of roads relative to an adopted Urban Growth Boundary (UGB). For example. the portion of a minor collector road lying inside a UGB would be designated as an Urban Minor Collector in the County's Road Inventory. The portion of such a road lying outside of a UGB would be designated as a Rural Minor Collector.

Polk County Planning Commission
Polk County Courthouse
First Floor Conference Room
850 Main Street
Dallas, Oregon
August 4, 2009

The following are the minutes of the Polk County Planning Commission meeting held September 15, 2009, in Dallas, Oregon:

1. CALL TO ORDER AND NOTE OF ATTENDANCE:

Jim Morrison called the meeting to order at 7:00 p.m. and noted attendance.

Present: Jim Morrison, Wayne Simmons, Bill Farmer and Lee Herzberg.

Absent: Chairman Bob Slyh, Michael Schilling and Jack Condon.

Staff: Austin McGuigan, Dana Gibson, Jim Jacks (MWVCOG) and Rick Davisson.

2. COMMUNICATION FROM THE PUBLIC AND ITEMS NOT ON THE AGENDA:

None.

3. MINUTES OF AUGUST 4, 2009:

Farmer motioned to adopt the minutes, seconded by Simmons. The minutes of August 4, 2009 were approved by unanimous vote of those present.

4. PUBLIC HEARING ON LA 09-02:

Gibson read from the staff memo for Legislative Amendment 09-02; Transportation Systems Plan (TSP) Update. Gibson stated that since the staff report has been written, comments were received from ODOT Senior Transportation Planner, Dan Fricke. Gibson stated that based on the staff report and the Draft TSP, staff recommends that the Planning Commission forward to the Board of Commissioners (BOC) a recommendation to adopt the proposed amendments and associated findings. Jacks gave a presentation summarizing the Draft TSP.

Morrison opened the Public Hearing for testimony.

Don Duhrkopf stated that he has been involved with the TSP since it was developed and was a member of the Citizen Advisory Committee. Duhrkopf stated that in goal one, the same numbers are used as in goal two and three and he feels it would be easier if they were different. Durkopf stated that some of the policies are negative as far as economic development. Duhrkopf stated that if you turn to page 3-2, which states that Polk County shall discourage adding mileage to the county road system until the following criteria are satisfied. Duhrkopf feels that tends to drive people away. Duhrkopf added that we should be looking for ways to accommodate people who want to do things that impact the transportation system in Polk County, not prevent it. Duhrkopf stated that he would like to make the policies a little friendlier. Duhrkopf stated that functional classifications are not consistent and uniform. Duhrkopf stated that they have talked about cleaning up the ninety degree corners, but on Rueben Boise, there is 180 degree corner that is not being taken care of. He feels that Rueben Boise and Pioneer, which he counted has over 500 residences and a sub-division, should be at a higher classification. Duhrkopf added that the reason that he wants a higher classification because it may require repair and maintenance support greater than traffic counts would indicate. Duhrkopf stated that he could not find any traffic comps for Rueben Boise or Pioneer. He added that these roads play a critical roll in the counties economy and their use by heavy trucks requires additional work. Duhrkopf added that Reuben Boise and Pioneer have qualification just as much as Richardson Road and Mill Creek Road that are classified as minor collectors. Duhrkopf stated the he is pleased with the information provided for the North Dallas bypass.

Dennis Brown, property owner on Rueben Boise Road, stated that there was some property on Reuben Boise that is owned by Forest Capitol and Weyerhaeuser and in the last ten years, they have harvested out of the area. In the past ten years, approximately 17,000 truck loads of lumber have come from this area and about 4,000 truck loads of gravel for their access have gone up there. Brown feels this creates a lot of traffic and the amount of damage it does to the unimproved portion of Rueben Boise. Brown questioned why Rueben Boise is not even classified in the TSP and what would have to be done to upgrade that assessment.

Brian Sparks stated that he was following up on concerns that he had about what did not get into the plan as it relates to the county issues around the City of Monmouth. Sparks questioned if the TSP, because of the different schedules, anticipate and does it include the updates that were in the most recent Monmouth plan. McGuigan responded that the City of Monmouth was on the Technical Advisory Committee for this project. Sparks stated that the issue about how to get around the community as we try to thread more things through the center of the community. Sparks stated that plans seem to favor people walking in town, but don't anticipate that we still use these streets for a wide range of things such as getting combines through the community. Sparks added that getting combines or tractors through or around the community is difficult at this time. Sparks feels we do need a road through the county property on the northwest side of Monmouth; something in the planning process needs to help get agricultural equipment from the north side of Monmouth to the south side. Sparks added that there are creek and bridge issues and we are not building additional bridges, especially where traffic flow doesn't show they are needed. Sparks feels this is why traffic is slow south of Monmouth to Highway 22 because the agricultural community has no choice but to use that road. Sparks feels the Monmouth plan should have provided a northwest route loop to provide a way for traffic to get around the community, although having Falls City Highway go through to 99W is in the plan. Sparks feels that this is something that the county could overlay on the City of Monmouth's process. Sparks added that going south, if Ash Creek Drive east/west route becomes a higher level classification roadway, which is in their plan, that would provide a route to Falls City Highway and a north/south road going along the west side of the community to connect back in to the north would be good fro the community for emergency access.

Vern Ratzlaff stated that there is an area that he feels is a safety factor. On page 6-1 there is a section about bicycles and pedestrians and in the network paragraph, quite a few roads have designated bike paths, but there are other roads that are being use extensively for bike travel that do not have a bike lane. Airlie Road, Elkins Road, Maxfield Creek Road, for example, between the fog line and the gravel may be about 6 inches, so the bike traffic does not ride in that bike line. Ratzlaff added that the conditions are hilly and curvy and it is a hazard to have cyclists on the road. Ratzlaff stated that he has talked to the BOC about this problem and asked them to categorize the roads based on how compatible the bikes were on the road. For example, a road that has a separate bike would be a number one, the roads that are curvy that have hills and blind areas should be a lower category and insist that cyclists honor that. Ratzlaff suggests that we widen the shoulders in the future or limit the groups of riders to make it safe. Ratzlaff stated that some of the wording in the TSP is very specific and at other times it is vague. Ratzlaff added that if this is a potential 20 year guidance for the county, then the plan needs to be more consistent.

Morrison closed the public testimony.

Morrison questioned how the functional classifications of the streets are determined. McGuigan responded that it is a prioritization that occurs with Public Works in terms of how the county is going to allocate its maintenance budget in how it maintains particular roads and the specification of the road has to be constructed to meet. McGuigan added that all of these different classifications have different road design and maintenance standards that apply to them. McGuigan questioned Jacks if there were there any changes that were made to the functional classification since the 1998 TSP. Jacks stated that overall, there are not a lot of changes from the 1998 plan to this TSP draft. Jacks added that the functional classification that was assigned to these roads in 1998 carries forward through this 2009 update. Jacks stated that there were a couple of changes near the cities, for example Eola that did not used to run into 55th Ave., so now it is designated a local road and is a minor collector. Jacks added when it comes to less frequently traveled road, there wasn't much analysis done on those roads. Jacks

stated that given some of these roads that are on the resource list don't have as much traffic or serve as many people, there is a potential based on zoning, based on rural residential, something that the Planning Commission could consider is to add the roads that they feel are appropriate to the resource road classification. McGuigan summarized that the majority of the analysis that took place at the staff level was on changes around cities and making sure the functional classifications that Polk County designates were consistent with what the cities were doing with their TSP, proposed roads and changes and very little was done to look at the existing county road structure changes in terms of additional traffic, new substantial development of any other thing that could change how the road is being used. McGuigan added that if the Planning Commission wants to consider this, he recommends that they should invite the Public Works director to provide input and suggestions on some of the changes that are occurring and issues with some of these county roads. Morrison stated that if they use these classifications to determine what kinds of service the roads get, there should be a way to change the classification when those patterns change. McGuigan recommended that we invite the Public Works director to attend and open the public hearing process again to allow the Public Works director to provide some input on the roads that were identified by Mr. Duhrkopf and Mr. Brown as being a concern in terms of their functional classification and then allow testimony based on what the Public Works Director has to say and then the Planning Commission can deliberate. Farmer stated that they need to focus on other roads, not just the ones talked about tonight. Simmons commented that recreational use of the roads, such as skate boarding, has become a problem. McGuigan responded that the BOC had designated specific roads so that people cannot skateboard on it and Sherriff's Department can enforce on that.

Ratzlaff stated on page 4-11, the width criteria is identified for several different roads, such as major arterial or minor collector. But, to put in a new public road that is a major arterial, there needs to be some specific criteria for right of way and developed road. McGuigan added that those are Polk County road standards.

McGuigan stated that we are operating under a grant to perform this work and we are under a tight timeline in completing a final product and adoption in order to comply with the grant agreement. As a result of that timeline, a BOC public hearing has been scheduled for September 30, 2009. McGuigan added that if the Planning Commission deliberates on September 29, 2009 we can carry that message to the BOC at their public hearing and we can express any changes to the BOC and allow the BOC staff some additional time if there are any changes to be made. Morrison responded that a Planning Commission meeting should be scheduled for September 29, 2009. Morrison requested to leave the record open for written testimony until September 22, 2009. McGuigan added that we could allow some discussions from the Public Works Director on concerns that he Planning Commission may have and then allow the public an opportunity to provide oral testimony. McGuigan stated that any written testimony must be provided to the Community Development Department by no later than 5:00 pm on Tuesday, September 22, 2009. The Planning Commission will convene again on Tuesday September 29, 2009 at 7:00 pm with the Public Works Director present and we will have an opportunity again for public comment and the public testimony component will be closed and the Planning Commission will deliberate. McGuigan added that we need to have a final product from the BOC by November 1, 2009 in order to receive payment for the grant.

Morrison stated that he would like to address Ratzlaff's concern about bike safety. Morrison stated that he lives on the race route near Burns. Morrison requested if we use the shared shoulder in Polk County because we have to comply with Oregon Revised Statutes. McGuigan responded that it is Oregon State law that we have to share the road and Polk County does not designate bike routes on roads that have narrow shoulders for liability reasons and the BOC receives a lot of pressure to designate bike routes through rural roads and they have not been comfortable doing that. McGuigan stated that functional road classifications do require certain specifications for bike widths in some locations. Closer to some of the urban areas, we designate roads with road classifications when improvements are made to those roads, those bicycle shoulder accommodations would have to be made. In terms of designating bike routes through the county on roads that have narrow shoulders, the county does not take that practice in labeling them as bike routes, however you can't keep cyclists from using those roads and they are required to follow all the traffic laws.

Jacks stated that there a few things in the TSP, such as spelling errors will be changed and a memo will be submitted into the record.

Morrison closed the Public Hearing for September 15, 2009.

5. COMMUNIATIONS FROM THE COMMITTEE FOR CITIZEN INVOLVEMENT:

None.

6. COMMUNICATIONS FROM PLANNING COMMISSION:

None.

7. COMMUNICATION FROM PLANNING STAFF:

None.

8. ADJOURNMENT:

The meeting was adjourned at 8:31 p.m.

BEFORE THE BOARD OF COMMISSIONERS FOR POLK COUNTY, OREGON

RECORDED IN POLK COUNTY
Valerie Unger, County Clerk
Commissioners' Journal
CJ 2009-354
12/08/2009 10:35:25 AM

In the matter of Legislative Amendment LA 09-02 Update of the Polk County Transportation Systems Plan including Amending the Transportation Element of the Polk County Comprehensive Plan, Polk County Zoning Ordinance Chapter 111 – Administration and Procedures and Chapter 112 - Development Standards	)

ORDINANCE NO. 09-08

WHEREAS, the 1998 Polk County Transportation Systems Plan requires updating for the next 20 year planning horizon; and

WHEREAS, on July 21, 2009, Polk County initiated the proposed legislative amendment (Legislative Amendment 09-02) to update the Transportation Systems Plan; and

WHEREAS, on July 17, 2009 a duly noticed open house was held providing opportunity for comments from the public; and

WHEREAS, on September 15, 2009 the Polk County Planning Commission conducted a duly noticed public hearing and received an unlimited amount of written and oral testimony and continued the public hearing until September 29, 2009; and

WHEREAS, on September 29, 2009 the Polk County Planning Commission deliberated on the proposed amendment and voted unanimously to recommend approval of Legislative Amendment 09-02 to the Polk County Board of Commissioners; and

WHEREAS, on September 30, 2009 the Board of Commissioners conducted a duly noticed public hearing and received a recommendation in support of Legislative Amendment 09-02 from the Polk County Planning Division staff and received written and oral testimony and continued the public hearing until October 7, 2009; and

WHEREAS, on October 7, 2009 the Board of Commissioners requested additional time to review the record, and the record was held open until October 20, 2009; and

WHEREAS, on October 21, 2009 the Board of Commissioners conducted a duly noticed public hearing and received an unlimited amount of written and oral testimony; and

WHEREAS, on October 21, 2009 having fully considered all testimony in the record, the Polk County Board of Commissioners openly deliberated on Legislative Amendment 09-02 and voted unanimously to approve the updated Transportation Systems Plan; now therefore,

THE POLK COUNTY BOARD OF COMMISSIONERS ORDAINS AS FOLLOWS:

Sec. 1 Adopt findings in support of Polk County Planning File, LA 09-020, contained in the staff report, and the final updates found in the Polk County Transportation Systems Plan, dated December 2, 2009.

Sec. 2 The existing Transportation Element (Element M) of the Polk County Comprehensive Plan be deleted in its entirety and replaced with the Polk County Transportation Systems Plan, dated December 2, 2009, see Exhibit "A".

Sec. 3 Polk County adopts amendments to Polk County Zoning Ordinance Chapter 111 - Administration and Procedures and Chapter 112 - Development Standards of the Polk County Zoning Ordinance be added, see Exhibit "B1" AND "B2".

Sec. 4 That Polk County determines that an emergency related to the economic welfare of the citizens of Polk County is declared and this ordinance is effective immediately upon passage.

Dated this 2nd day of December 2009 at Dallas, Oregon.

POLK COUNTY BOARD OF COMMISSIONERS

Tom Ritchey

Tom Ritchey, Chair

Ron Dodge, Commissioner

unavailable for signature

Mike Propes, Commissioner

Approved as to Form:

David Doyle
County Counsel

First Reading: 12-2-09
Second Reading: 12-2-09
Recording Secretary: Jennifer Wheeler

APPENDIX N

SKATS Endorsement

DRAFT

Minutes

Salem-Keizer Area Transportation Study (SKATS)
Policy Committee Meeting
November 24, 2009
109 High St. SE
Salem, OR
Noon

Policy Committee Members Present

Commissioner Sam Brentano, Marion County
Councilor Cathy Clark, 2009 Vice Chair, City of Keizer
Councilor Dan Clem, 2009 Chair, City of Salem
Robert Krebs, Salem-Keizer Transit District
Tim Potter, ODOT
Commissioner Tom Ritchey, Polk County

Policy Committee Members Absent

Ron Jones, Salem-Keizer School District
Mayor Carly Strauss, City of Turner

Others Present

Nancy Boyer, MWVCOG Staff
Nate Brown, Keizer Community Development
Darnell Caruth, MWVCOG-SKATS Staff
Dan Fricke, ODOT Region 2
Dave Fridenmaker, Salem-Keizer School District
Ray Jackson, MWVCOG-SKATS Staff
Eric Lundgren, Bicycle Transportation Alliance
Richard Schmid, MWVCOG-SKATS Staff
Mona West, Salem-Keizer Transit District

Agenda Item A. Call to Order

Chair Dan Clem called the meeting to order at 12:04 p.m.

Agenda Item B. Minutes of October 27

Following introductions, motion was made by Tim Potter, seconded by Tom Ritchey, to approve the minutes of the October 27, meeting as submitted. Those voting in favor of the motion were Sam Brentano, Dan Clem, Robert Krebs, Tim Potter, and Tom Ritchey. **The motion passed unanimously.**

Agenda Item C. Public Comment

There were no comments from the public.

Agenda Item D. Highway 22 West Expressway Management Plan (EMP)

A presentation of the EMP was given by Dan Fricke. The Plan has been reviewed and endorsed by the Polk County Board of Commissioners and is scheduled for review and adoption by the Oregon Transportation Commission. Traffic and safety issues along the Highway 22 corridor between the Derry Overcrossing (Greenwood Road) and Doaks Ferry Road are addressed in the plan.

Cathy Clark arrived at 12:15 p.m.

Dan Clem asked about the closed park near that area. It would be a perfect access to Doaks Ferry Road. Eric Lundgren said that there has been talk of building a BMX bike park, but there isn't a concrete plan.

If endorsed the EMP would become part of the illustrative list in the RTSP until funding is available.

Motion was made by Tom Ritchey, seconded by Sam Brentano, to endorse the EMP and include it in the illustrative list of the RTSP.

Cathy Clark expressed concern that there would be no left turn from Doaks Ferry Road. Once you are coming down Doaks Ferry toward Highway 22 you are committed. There is no other place to go. Clearly marked alternatives are needed so people don't get lost. Dan Fricke said that the State Traffic Engineer would need to approve the striping.

Those voting in favor of the motion were Sam Brentano, Cathy Clark, Dan Clem, Robert Krebs, Tim Potter, and Tom Ritchey. **The motion passed unanimously.**

Agenda Item E. Update on TIP and RTSP Amendment

Richard Schmid presented a memorandum dated November 17, 2009, regarding proposed Regional Transportation Systems Plan (RTSP) and Transportation Improvement Program (TIP) amendments for public review. Richard pointed out that the amounts listed on the first page of the memorandum for the Aumsville Highway and the Kuebler Boulevard and I-5 interchange were reversed. There are several projects that the local jurisdictions have nominated for potential funding but are not currently in the adopted RTSP. A 30-day public review for these kinds of major amendments to the RTSP or TIP is required by the Public Participation Plan (PPP). The RTSP and TIP amendments are needed now so they can be released for public review by December 23, 2009. The RTSP would also be amended to include the "alternative measures" required by the Oregon Transportation Planning Rule (TPR). Salem and Keizer have already addressed the projects in their plans.

Dan Clem asked if the counties need to do anything. Richard responded that since the projects are not outside the urban growth boundary, nothing is required of the counties. Dan asked if the Alternative Mode Study was a part of this. Richard answered no.

Motion was made by Cathy Clark, seconded by Tim Potter, to include the projects listed in the November 17, 2009, memorandum to the SKATS Policy Committee from Ray Jackson and Mike Jaffe in the RTSP/TIP Amendments along with the "alternative measures" to be released for public review and comment. Those voting in favor of the motion were Cathy Clark, Dan Clem, Robert Krebs, Tim Potter, and Tom Ritchey. Sam Brentano abstained from voting. **The motion passed with five votes in favor of the motion and one abstention.**

Agenda Item F. ODOT Draft FY 10-FY 13 STIP

Dan Fricke shared a power point presentation with the committee reviewing the State Transportation Improvement Plan (STIP) after the House Bill 2001 funding changes: where the additional funding will come from, how it will be split between the regions, and how it will be used. The draft FY 10-FY 13 STIP is currently out for public review. Public comments will be accepted until December 31, 2009.

Sam Brentano asked about the barriers that were put up on Highway 22 from I-5 to Sublimity. Tim Potter said that since stimulus money was used, the project went through the normal process but was pushed through and was done very quickly.

Agenda Item G. Other Business

Dan Fricke gave an update on the Salem Rivercrossing Environmental Impact Statement (EIS). There is a lot of work coming up soon for the technical staff. Reports are due soon for review. The project is on track for both cost and calendar. It will be discussed at the Salem City Council meeting on December 14, 2009.

Dan Clem encouraged everyone to attend the next Greenhouse Gas Task Force meeting which is December 4, 2009. Mr. Clem would like the task force to look into a statewide plan. 67 percent of the green house gases in our area are from commuters coming from outside our region. Cathy Clark pointed out that the focus has been on reducing vehicle miles traveled, but there hasn't been any increased funding for alternative modes.

Richard Schmid announced that there would be no December meeting unless something comes up that needs to be addressed.

Chair Dan Clem adjourned the meeting at 1:35 p.m.