I-5 Interchange 35 (Seven Oaks) Improvement Project

Interchange Area Study

Prepared for:

Oregon Department of Transportation
Region 3

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List of Acronyms

ADT	average daily traffic
CORP	Central Oregon & Pacific
CP-1	Central Point-1 (a proposal by the city for an area in which to grow)
EFU	Exclusive Farm Use
GI	General Industrial
I-5	Interstate 5
IAMP	Interchange Area Management Plan
IC	Interchange Commercial (zoning category)
LCDC	Land Conservation and Development Commission
LDO	Land Development Ordinance
LOS	Level of Service
OAR	Oregon Administrative Rules
ODOT	Oregon Department of Transportation
OHP	Oregon Highway Plan
OR	Oregon Route
OTIA	Oregon Transportation Investment Act
OTC	Oregon Transportation Commission
PRC	Planning Research Corporation
RPS	Regional Problem Solving
RR-5	Rural Residential (zoning category)
RTP	Regional Transportation Plan
RVCOG	Rogue Valley Council of Governments
STIP	Statewide Transportation Improvement Program
TAC	Technical Advisory Committee
TSP	Transportation System Plan
UGB	Urban Growth Boundary
v/c	Volume-to-capacity

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1 INTRODUCTION

1.1 Purpose

The Oregon Department of Transportation (ODOT) and Jackson County have determined that the Interstate 5 (I-5) interchange with Oregon Route (OR) 99 and Blackwell Road in Jackson County, Oregon, is in need of modifications and improvements to allow the interchange to function more safely and efficiently. The Interchange 35 (Seven Oaks) improvement project will consist of actions to modify and improve the existing modified standard diamond interchange.

This Interchange Area Study will assist the County and ODOT with the long-term transportation system management in the area around the interchange including affected segments of the state highways.

This study evaluates the operation of Interchange 35, assesses limitations, identifies future long-range needs, and identifies recommended improvements in order to ensure consistency with mobility standards. The study assesses interchange improvements that may be needed to accommodate the replacement of the structurally deficient Oregon Highway 99 (OR 99)/Blackwell Road overpass bridge and long-range needs attributable to planned development in the area.

1.2 Project Funding and Identification

The OTC, the Governor, and the Legislature have placed increasing priority on Oregon's bridge program and have shifted funds in that direction during the past three biennia. The Oregon Legislature passed the first Oregon Transportation Investment Act (OTIA) for the 1997 through 1999 biennium. OTIA III funds $1.3 billion for the replacement and repair of 365 state bridges beginning in the 2003-2005 biennium. In January 2003, the Economic and Bridge Options Team formed by ODOT determined that staging bridge and roadway improvements beginning with freight corridors in Central and Eastern Oregon would provide the state's population centers with good north-south and east-west connections. Many OTIA projects are located near those already authorized under the Statewide Transportation Improvement Program (STIP).

The OTC approved the OTIA funding for this interchange modernization project as part of the Seven Oaks Bridge Package project. The bridge package includes the replacement of the OR 99/Blackwell Road overpass bridge, and the northbound and southbound bridges over the Central Oregon & Pacific (CORP) Railroad. To limit the impact on traffic, these projects have been grouped together into one package. ODOT identifies it as a Stage 1a project (it was originally a Stage 3 project). Stage 1a includes bridges that are essential to the movement of freight and must be stabilized immediately. Most of the bridges in this category are in the I-5 corridor. (The other stages are 1, 2, 3, 4, and 5.)

The Seven Oaks Bridge Package includes:

- Replacement of the OR 99/Blackwell Road bridge over I-5 (Bridge No. 08539 at mile point 0.37)
- Replacement of the I-5 southbound bridge over the CORP railroad (Bridge No. 07777 at mile point 36.09)
- Replacement of the I-5 northbound bridge over the CORP railroad (Bridge No. 07777B at mile point 36.09)
- Reconfiguration of the interchange ramps to improve safety—from a modified standard diamond to a standard diamond for the northbound ramps and a folded diamond for the southbound ramps
- Paving along Blackwell Road

The Interchange Area Study does not address the bridge replacements over the CORP railroad.

1.3 Function of the Interchange

Interchange 35 is principally a rural interchange that connects I-5 with OR 99, a District-level highway that serves the nearby community of Central Point to the south. The primary function of interstate freeways is to serve inter-regional and interstate passenger and freight traffic. District-level facilities have countywide importance and serve trips between small urbanized areas, rural centers and urban hubs. The interchange also connects with Blackwell Road, a county facility, which provides a connection with White City to the north, a major industrial area. Blackwell Road serves significant truck trips between the interchange and White City. No highway oriented commercial facilities or significant residential areas are located in the immediate vicinity of the interchange.

The intended function of Interchange 35 is to safely and efficiently accommodate future traffic demands associated with current rural land uses. The interchange improvements outlined in this study are not intended to facilitate commercial or residential development in the interchange area.

1.4 Interchange Area Study Goal and Objectives

The goals of this Interchange Area Study are as follows:

1. Select a preferred interchange configuration for the bridge replacement project.
2. Provide information that may be useful in the Regional Problem Solving process.
3. Provide information that may be useful should an Interchange Area Management Plan be prepared in the future.

1.5 Interchange Analysis Area

The interchange analysis area delineates the vicinity in which transportation facilities, land uses, and approaches affect operations at the interchange. The analysis area includes the existing interchange, the immediate surrounding area where new ramps would be constructed, commercial and industrial parcels immediately north and west of the interchange, and the area south of the interchange that is of mutual concern to Jackson County and the City of Central Point. This area is under County jurisdiction, and the County sends the City notices of development applications affecting property within this area.

The interchange analysis area extends from the unnamed road north of the Cascade Florist and Nursery south to Scenic Avenue/the City of Central Point Urban Growth Boundary (UGB). Bear Creek forms the east analysis area boundary. North of the interchange, the boundary on the west is the CORP railroad line. South of the interchange, the west boundary is approximately 2,700 feet west of OR 99 (Rogue Valley Highway). Figure 1 is a vicinity map and Figure 2 shows the interchange analysis area.

1.6 Public and Agency Participation

This interchange area study has been prepared with participation of the Rogue Valley Council of Governments (RVCOG—the Rogue Valley Metropolitan Planning Organization), Jackson County, the City of Central Point, and with input from a variety of stakeholders and the general public. Contacts were made with stakeholders interested in or concerned about the proposed interchange modifications and possible effects on existing land uses, access, and the local road system.

A Technical Advisory Committee (TAC) informed and guided the preparation of the study and the work products developed for the study. The TAC met six times during the course of the project. TAC members included representatives from the RVCOG, the Jackson County Planning and Road departments, and the City of Central Point planning department. ODOT TAC members included staff from Region 3 Planning, Preliminary Design, Transportation Analysis Unit, Traffic/Region Access Management Engineer, Right-of-Way, and the Bridge Package Consultant Project Manager.

1.7 Preferred Interchange Configurations

1.7.1 Configuration 1 Interchange Improvements

The immediate ODOT construction project at the interchange, referred to as Configuration 1 (See Figure 3) will be to replace the structurally deficient OR 99/Blackwell Road bridge over I-5 (Bridge No. 08539), and is scheduled for construction in 2005 and 2006 (one of the three bridges in the Seven Oaks Bridge Package project).. The bridge will have three travel lanes and will accommodate bicyclists and pedestrians, with a minimum span long enough to accommodate six travel lanes on I-5 with an urban median and a southbound loop off-ramp. The bridge type will allow for widening, should future traffic conditions require additional lane capacity.

Configuration 1 realigns the north- and southbound on- and off-ramps. The existing interchange configuration, which has a unique, non-standard configuration (a modified standard diamond), would be replaced by a folded diamond configuration for the southbound ramps. The proposed southbound off-ramp would move approximately 700 feet south, where it would run adjacent to I-5 under the new OR 99 overcrossing. The ramp would then loop back around with a 25-mile per hour curve to connect to OR 99 adjacent to the southbound on-ramp at a signalized intersection. The intersection would consist of the southbound on- and off-ramps as the east leg, OR 99 as the north and south legs, and Willow Springs Road as the west leg. The proposed on-ramp would move approximately 550 feet south to align the ramp terminal with the intersection and to eliminate the conflict between the ramp's current alignment and the proposed off-ramp alignment.

A severe skew angle at the northbound on- and off-ramp terminals with OR 99/Blackwell Road will be eliminated by the Configuration 1 improvements. The I-5 northbound off-ramp will be reconstructed to intersect OR 99/Blackwell Road at a right angle. Also, unconventional stop control, which forces southbound through vehicles to yield to oncoming left-turning vehicles, would be replaced with conventional intersection control that will place stop control only on the I-5 northbound off-ramp terminal. All north- and southbound movements on OR 99/Blackwell Road will be free movements.

The available budget for improvements will support only interchange improvement work that is necessary to make a new bridge function within the existing interchange footprint. The project will provide funding for incremental efficiency and safety improvements to the interchange, though more extensive improvements are beyond the budget limits of the first phase of work. Further interchange improvements to resolve deficiencies that Configuration 1 is unable to address may be implemented in the future should funds become available. This study evaluates a potential interchange design, called Configuration 2, which would provide sufficient long-term operational capacity and increased access spacing. This study addresses both Configuration 1 and Configuration 2, and identifies improvements necessary to implement both configurations.

1.7.2 Configuration 2 Interchange Improvements

One of the key limitations of Configuration 1 would be that southbound I-5 traffic going to Highway 99 southbound would be required to make a left turn at a signalized intersection where the ramp terminal and Willow Springs Road intersect OR 99.

Configuration 2 (See Figure 4) involves the construction of two off-ramps from southbound I-5. In addition to the loop ramp of Configuration 1, a second ramp would provide a free movement from southbound I-5 to southbound OR 99 toward Central Point. To accommodate the free-flowing second ramp, Willow Springs Road, which under Configuration 1 intersects OR 99 at the ramp terminal, would be terminated in a cul-de-sac, which would sever its direct connection to OR 99 and the southbound ramp terminals. A local street network would be constructed that would reroute vehicle traffic from Willow Springs Road to a new intersection with OR 99 near its intersection with either Eric Avenue or Seven Oaks Road.

Another element that may occur as a part of Configuration 2 would be a new local street network that would reroute vehicle traffic from the frontage road that intersects Blackwell Road approximately 400 feet from the northbound ramp terminals. Two alternatives have been proposed for the new connection location. These would place the intersection at approximately 1,100 feet and 1,700 feet north of the interchange ramp terminals, respectively. Relocation of the frontage road, while desirable, is not an essential element of Configuration 2

Illustrations of Configuration 1 and Configuration 2 interchange improvements are provided in Figure 3 and Figure 4, respectively.

2 ALTERNATIVES

2.1 Alternatives Considered

Ten preliminary concept designs were prepared for short- and long-term improvements at Interchange 35. The immediate task of the concept designs for Configuration 1 was to locate the future alignment of OR 99 so that the design of the bridge could proceed. Concepts 7 through 10 represent the alternatives for Configuration 1. These alternatives were designed to minimize right-of-way takes and relocation of residents. Concepts 1 through 6 represent larger improvements that could be implemented at some undefined future date. All of the concept designs would allow for a potential future truck route connection between I-5 and OR 140 (Lake of the Woods Highway). A detailed discussion of the alternatives can be found in Appendix A, including illustrations of each. A brief description of the ten alternatives follows.

Concepts 1 through 3 were developed to inform the selection of Configuration 2 interchange improvements, which are more extensive than Configuration 1, as described above.

Concepts 4 through 6 looked at how this overcrossing bridge and this interchange might integrate with a more extensive interchange revision to accommodate a potential future extension of OR 140 (Lake of the Woods Highway). This extension was investigated extensively about ten years ago, but there is not an active development project at this time.

Concept 7 documents the concept that was included in the engineering baseline report for the cracked bridge program.

Concepts 8 through 10 were developed to inform the selection of Configuration 1 interchange improvements, and represent minimum strategies to allow a new overcrossing bridge to function with most of the elements of the existing interchange. Concept 10 represents an absolute minimum that might be done in order for the new bridge to function with the existing interchange.

2.2 Selection of Preferred Alternatives

The major challenges the project team faced was developing a project that balanced the scope of project improvement along OR 99/Blackwell Road against the need to (1) limit costs to funding that ODOT Region 3 can reasonably expect to obtain for this project; (2) limit environmental impacts; (3) limit right-of-way impacts and displacement of residences to a level that minimizes local project opposition that could delay the process of obtaining the conditional use permits from Jackson County; and (4) limit the amount of construction that may not fit the as yet unknown full build out interchange.

Of the ten alternatives, the folded diamond of Concept 9 and the standard diamond of Concept 8 were advanced as means to address operational and safety problems with the interchange. These concepts became Configuration 1 and Configuration 1A, respectively.

Initially, the project team favored the standard diamond option because it was a more conventional interchange layout for travelers. In addition, the standard diamond alignment would operate somewhat more efficiently, and a traffic signal at the southbound ramp might be delayed. However, the standard diamond alignment would have several complications. It would require right-of-way acquisition for both the southbound off-ramp and for a relocation of Willow Springs Road. These would cause greater impacts to farmland and sensitive residential locations that potentially would cause project opposition and delay land use permit approval. Additionally, the relocated off-ramp would impact Oregon Department of Environmental Quality ground water monitoring wells that would have to be replaced or decommissioned. Concerns over these issues led the project team to reject the standard diamond alternative and select the standard/folded diamond option. Section 6.1 contains traffic operational analysis for the standard/folded diamond configuration, and Appendix C contains traffic operations analysis for the standard diamond, or Configuration 1A.

As stated in 1.6, Configuration 1 consists of the standard/folded diamond configuration. Configuration 2 represents a full build-out of the interchange and includes all the features of Configuration 1 but adds a second I-5 southbound off-ramp, severs the existing connection of Willow Springs Road with OR 99, and creates a new local street network on the south side that would result in increased access spacing along the interchange crossroad. Configuration 2 improvements could also include the relocation of a frontage road on the north side of the interchange.

3 EXISTING TRANSPORTATION FACILITIES AND OPERATIONS

This section discusses existing geometric and traffic volume conditions, physical features summary, capacity analysis, queuing analysis, collision history and safety overview, as well as an overview of planned and programmed projects within the study area.

3.1 Transportation Facilities

Four intersections adjacent to Interchange 35 were examined for the study. These intersections are described below.

3.1.1 I-5 Southbound Off-Ramp at Willow Springs Road

The single-lane southbound I-5 off-ramp currently crosses Willow Springs Road just prior to its merge with OR 99 southbound. This arrangement forces local traffic from Willow Springs Road to cross the off-ramp in order to access OR 99 northbound. It also requires southbound traffic exiting I-5 going to the north on OR 99/Blackwell Road to make a left turn from a high-speed ramp onto a short stub of Willow Springs Road and then a left onto northbound OR 99.

Willow Springs Road is a two-lane rural, local road, and is stop-controlled on both the eastbound and westbound approaches. The I-5 southbound off-ramp is free-flowing. All approaches have one lane with combined through and turning movements.

3.1.2 I-5 Southbound On-Ramp at Willow Springs Road/OR 99

The intersection of OR 99 with Willow Springs Road/I-5 southbound on-ramp lies directly to the east of the intersection of Willow Springs Road with the I-5 southbound off-ramp. The Willow Springs Road approach has an effective storage length of 60 feet and is stop controlled. OR 99 is free-flowing through the intersection. All approaches have a single lane accommodating both through and turning traffic.

Because of the short storage distance on the stub of Willow Springs Road, queues frequently back onto the southbound I-5 off-ramp, which is intended to provide high-speed, uninterrupted flow between southbound I-5 and southbound OR 99. Queuing on this ramp significantly degrades the safety and efficiency of the interchange facility.

3.1.3 I-5 Northbound On- /Off-Ramps at OR 99/Blackwell Road

The intersection of OR 99/Blackwell Road, and the I-5 northbound on- and off-ramps lie directly to the north of I-5. OR 99 comprises the south leg and Blackwell Road comprises the north leg. Both are two-way, two-lane roads. The northbound I-5 off- and on-ramps comprise the east and west legs, respectively, and intersect at a skewed angle. Both ramps are restricted to one direction of travel. The westbound approach (southbound I-5 off-ramp) features channelization with a separate left-turn lane and shared through/right with stop-

control for both. The southbound approach (Blackwell Road) is stop controlled, and consists of one through lane and a channelized wide-radius right-turn lane with approximately 150 feet of storage. The northbound approach of OR 99 consists of a single lane for through and left-turning traffic. This approach has all free movements, including the left movement from OR 99 northbound to I-5 northbound. Southbound through vehicles on Blackwell Road must yield to opposing left-turning vehicles. This arrangement violates convention and the driver expectation that left-turning vehicles yield to opposing traffic.

3.1.4 Blackwell Road at Kirtland Road

The intersection of Kirtland Road and Blackwell Road is located just over one mile to the north of the interchange. Kirtland Road is stop-controlled as it intersects Blackwell Road at a T configuration. Each approach has a single lane, though the Kirtland Road and westbound Blackwell Road approaches have very wide radius corners for right turns that effectively allow separation of those movements.

Lane configurations for all the study intersections are shown in Figure 5. Existing peak hour traffic volumes are shown in Figure 6.

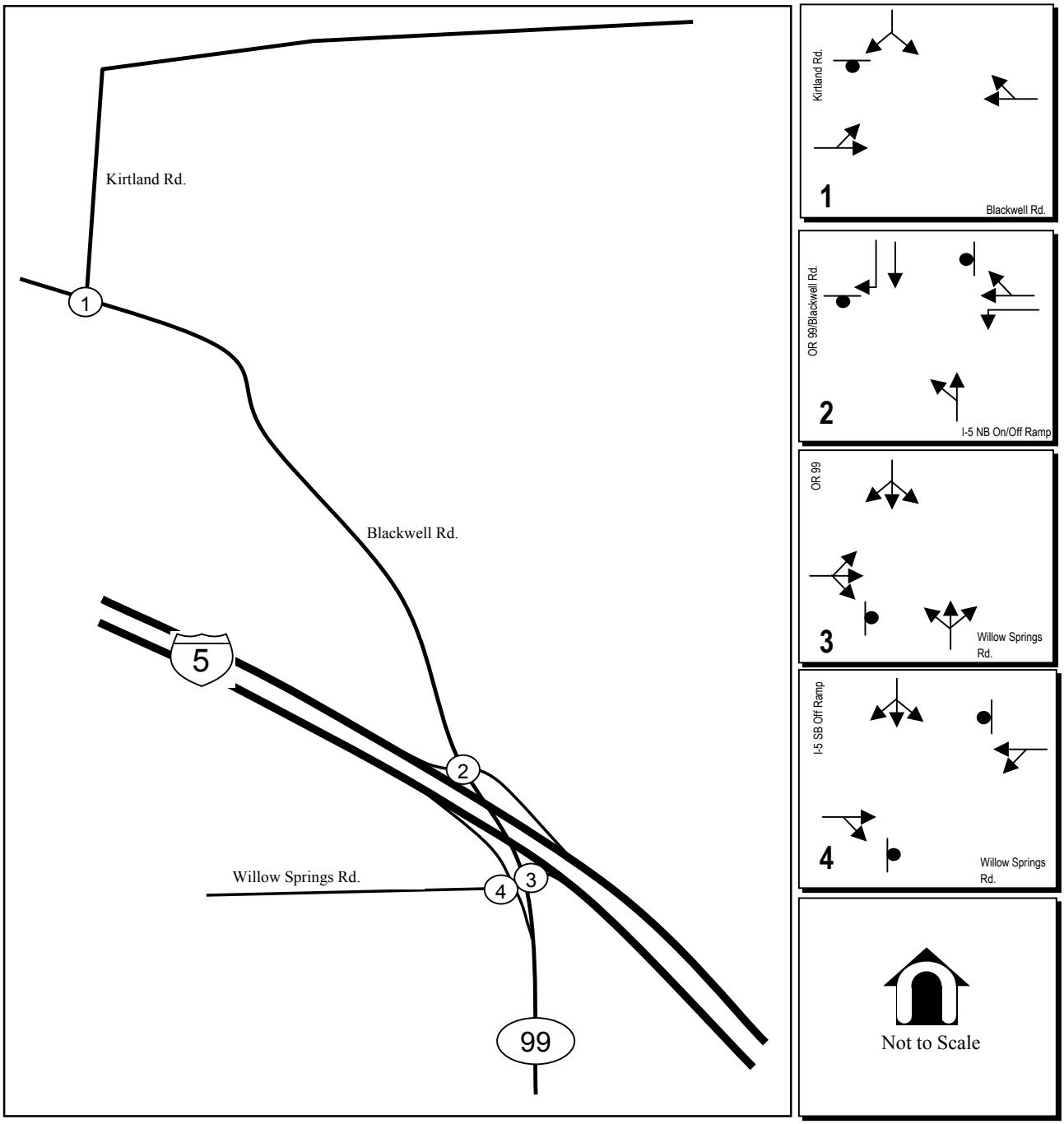
3.1.5 Heavy Vehicles

Trucks are an important component of traffic around Interchange 35 with heavy trucks accounting for an average of 8 to 10 percent of the daily volume. The trucks are a combination of long-haul trucks and trucks serving timber industry sites and three rock quarries located to the north of Interchange 35 off Blackwell Road. Truck percentages at each interchange area intersection can be found in Appendix B.

3.2 Traffic Operations Analysis – Existing Interchange Configuration

This section presents the results of the operational analysis for existing and 2026 traffic volume conditions in the interchange area, and assumes that the existing interchange configuration and roadway network does not change. Analysis was conducted for design hour traffic volume conditions, according to ODOT Transportation Planning Analysis Unit methodology. Figures 7 and 8 show 2004 30th highest hour volumes and 2026 design hour volumes, respectively.

The OHP outlines mobility standards in terms of volume to capacity (v/c) ratios. The applicable mobility standard for interchange ramp facilities in rural areas is 0.75. The intersection of Blackwell Road and Kirtland Road is under the jurisdiction of Jackson County. According to the Jackson County TSP the mobility standard for this intersection is 0.95. These standards apply through the planning horizon year, which is 2026 in this case. Appendix B contains a detailed discussion regarding the determination of 30th highest hours, design hour volumes, and all other analysis methodologies, including traffic counts and operational criteria.



DAVID EVANS AND ASSOCIATES INC.

LEGEND

000 = PM Peak Hour Turning Movement Volume

= Turning Movement

(14) = Intersection Number

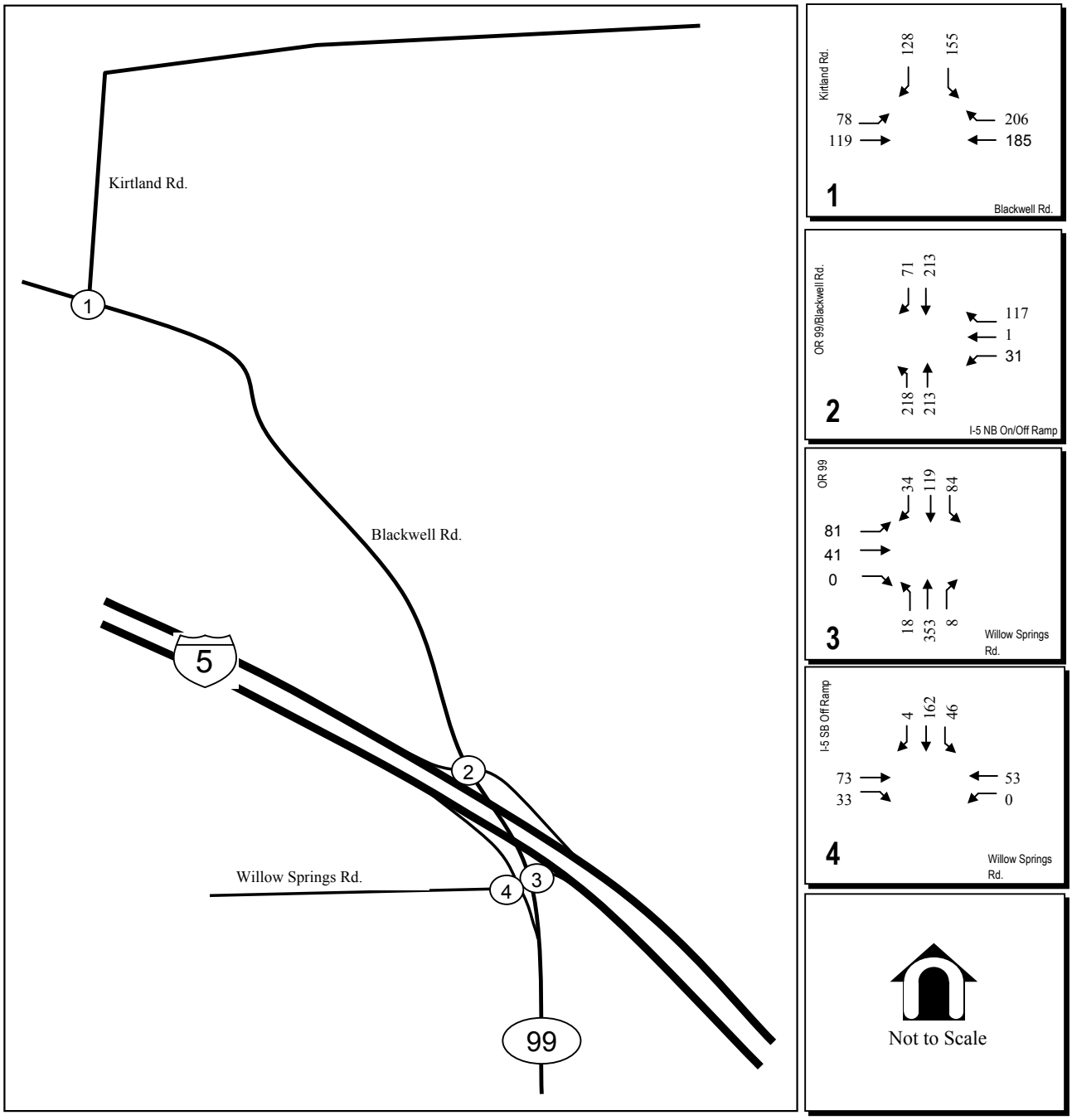
= Stop Sign

Figure 5

Lane Configurations

Existing Interchange

Interchange 35



DAVID EVANS AND ASSOCIATES INC.

LEGEND

000 = PM Peak Hour Turning Movement Volume

= Turning Movement

(14) = Intersection Number

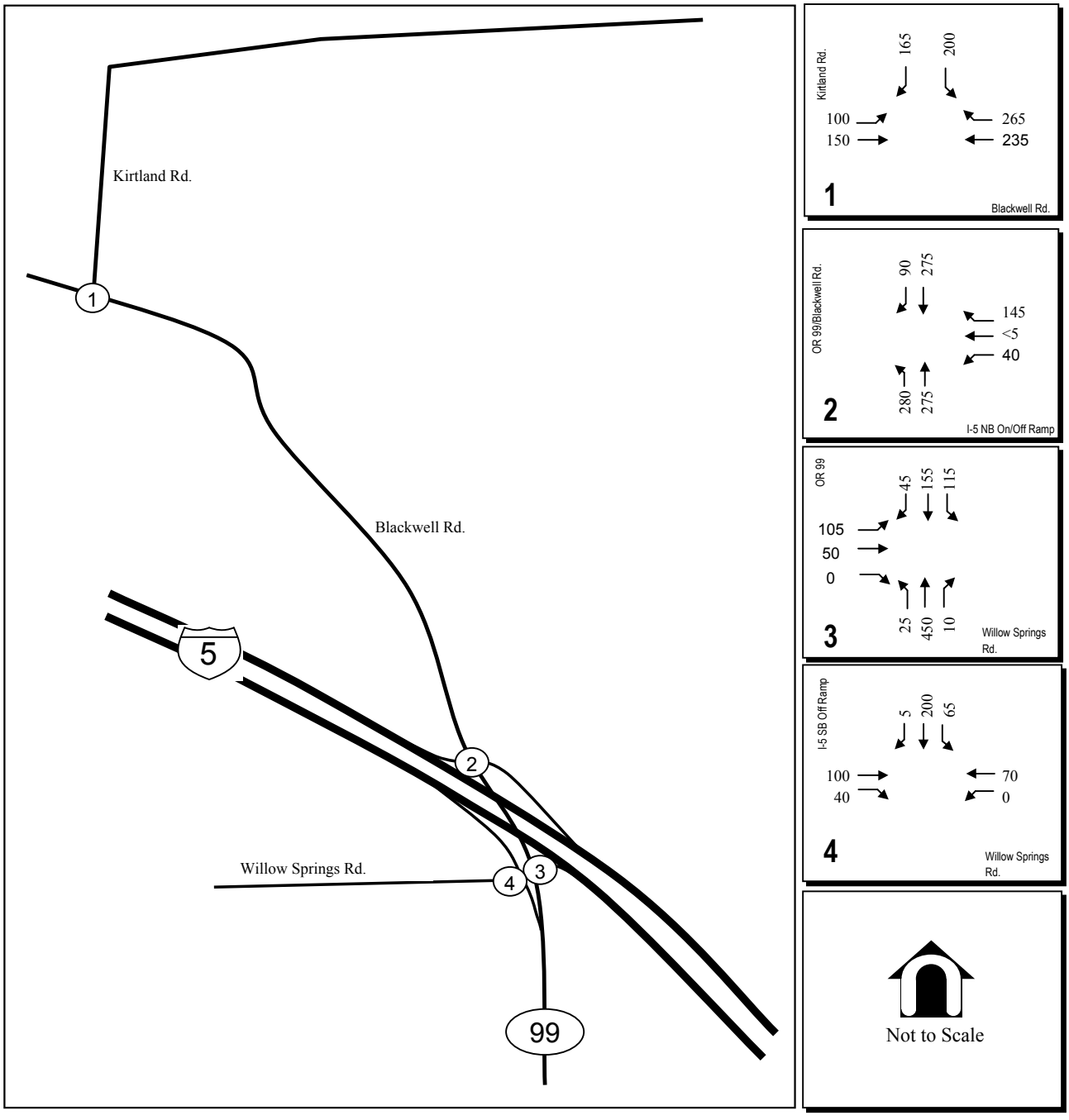
Figure 6

2004 Existing Peak Hour

Traffic Volumes

03/17/2004 3:15 to 4:15 PM

Interchange 35



DAVID EVANS AND ASSOCIATES INC.

LEGEND

000 = PM Peak Hour Turning Movement Volume

= Turning Movement

(14) = Intersection Number

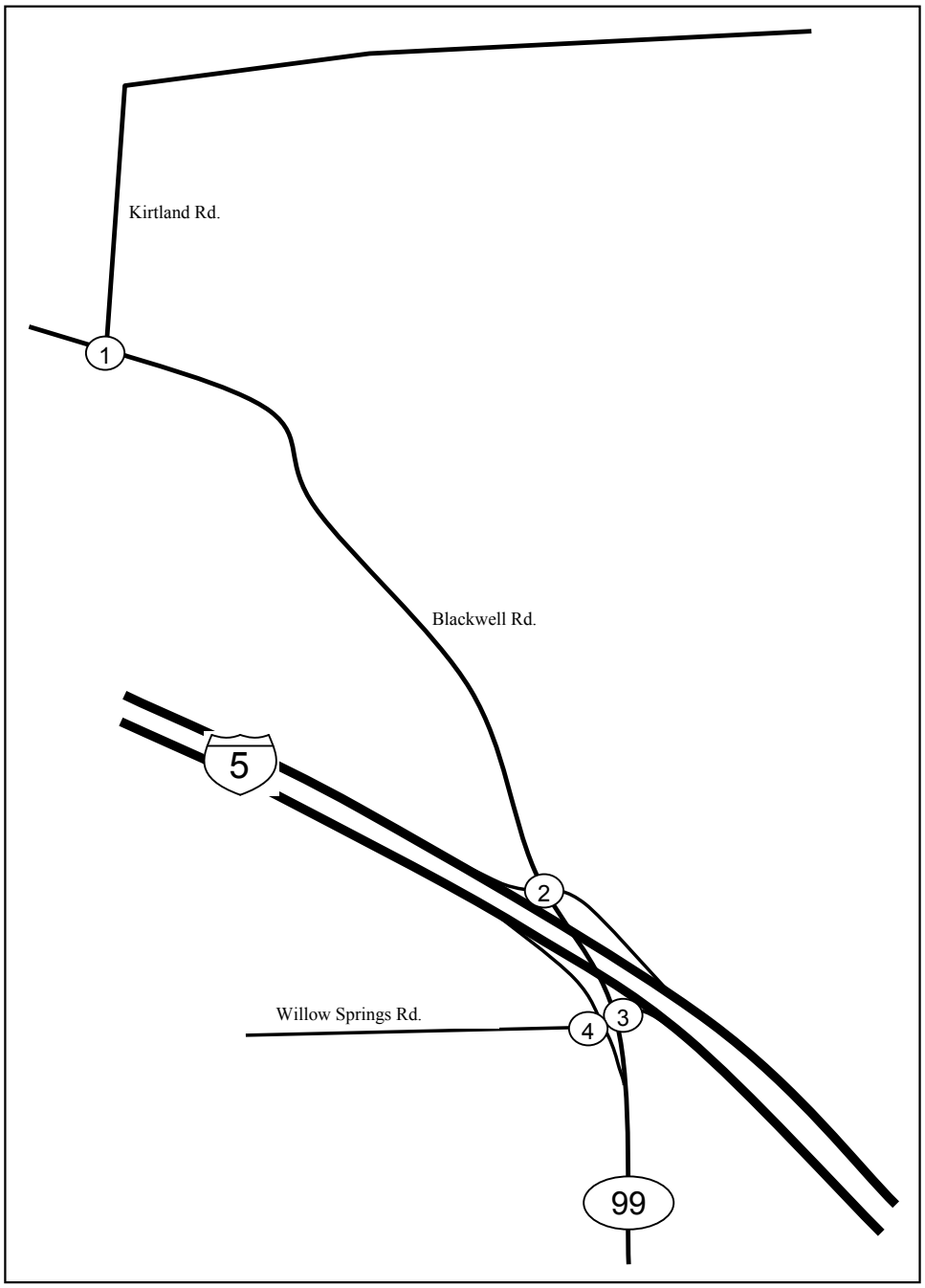
Figure 7

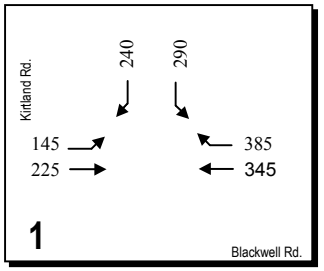
2004 30th Highest Volume

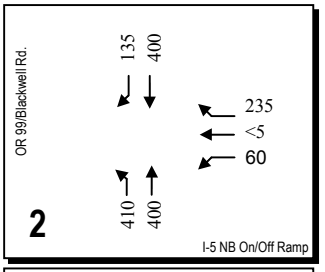
Existing Interchange Configuration

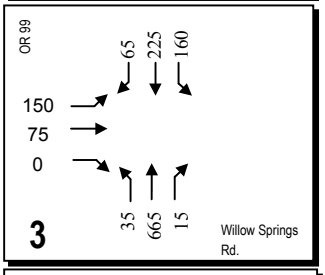
Seasonal Factor = 1.24 (ramps), 1.28 (OR 99)

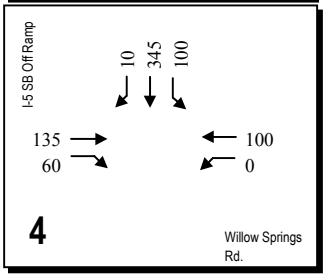
Interchange 35











Not to Scale

DAVID EVANS AND ASSOCIATES INC.

LEGEND

000 = PM Peak Hour Turning Movement Volume

= Turning Movement

(14) = Intersection Number

Figure 8

2026 Design Hour Volumes

Existing Interchange Configuration

Interchange 35

3.2.1 I-5 Southbound Off-Ramp at Willow Springs Road

The Willow Springs Road approaches are currently operating at an acceptable level of service (LOS). However, it should be noted that analysis did not take into account the spillback from the adjacent intersection to the east (Willow Springs Road/I-5 southbound on-ramp at OR 99). The Willow Springs westbound approach to the adjacent intersection has an effective storage length of approximately 60 feet, which is long enough to accommodate little more than a single truck. Regular backups occur at this intersection, which impacts the operation of the subject intersection. Queuing on the I-5 southbound off-ramp results. Stopped vehicles on a high-speed ramp facility represent a significant safety hazard.

3.2.2 I-5 Southbound On-Ramp at Willow Springs Road/OR 99

Analysis shows this intersection to be over-capacity for both current and future traffic conditions. The 95th percentile queue length for Willow Springs Road is longer than the length of the road. As noted above, the Willow Springs Road stub is approximately 60 feet long and the queue often blocks the upstream intersection (southbound I-5 off-ramp at Willow Springs) causing the queue to overflow onto both the I-5 southbound off-ramp and Willow Springs Road. Queues that exceeded the available storage were confirmed by observations in the field.

3.2.3 I-5 Northbound On- /Off-Ramps at OR 99/Blackwell Road

Analysis shows all approaches operating at an acceptable LOS under existing conditions. Under future conditions, the LOS decreases with substantial increases in delays for westbound I-5 off-ramp and southbound Blackwell Road traffic. Limited queue storage distance may increase delays when queues for through traffic exceed the length of the turn lanes. This may occur for both the westbound and southbound approaches.

This intersection has unconventional traffic control. All approach legs are stop-controlled except for the northbound through and left movements from the south leg of OR 99. The current arrangement forces southbound through vehicles at the intersection to yield to on-coming, left-turning vehicles. Special analysis considerations regarding this type of intersection control are discussed in Appendix B.

3.2.4 Blackwell Road at Kirtland Road

Analysis shows the stop-controlled approach of Kirtland Road to be well over capacity for both current and future traffic conditions, with significant queuing and delays.

3.2.5 Conclusions

Table 1 summarizes analysis results for current and future year traffic volume conditions under the existing interchange configuration at the four interchange area intersections.

Assuming the proposed existing interchange configuration is unchanged, future analysis for year 2026 shows that all of the stop-controlled approaches will operate at a very poor LOS.

Long delays and excessive queuing will be prevalent at the stop-controlled approaches in the interchange area.

Table 1. Operational Analysis Summary for Existing Interchange Configuration

		2004 30th Hour Volumes			2026 Design Hour Volumes		
		v/c	95 % Queue (ft)	LOS	v/c	95 % Queue (ft)	LOS
I-5 Soutbound Off-Ramp at Willow Springs Road	Willow Springs (WB)	0.17	<20	B	0.27	27	C
	Willow Springs (EB)	0.31	34	B	0.46	59	C
	I-5 Southbound Off-Ramp	0.04	<20	A	0.07	<20	A
I-5 Southbound On-Ramp at Willow Springs Road/OR 99	Willow Springs (EB)	1.09	234[1]	F	2.56	N/A[2]	F
	OR 99 (NB)	0.02	<20	A	0.03	<20	A
	OR 99 (SB)	0.14	<20	A	0.20	20	A
I-5 Northbound On- /Off-Ramps at OR 99 / Blackwell Road	I-5 Northbound Off-Ramp (WB Left)	N/A[3]	57	C	N/A[3]	96	F
	I-5 Northbound Off-Ramp (WBT / R)	N/A[3]	69	A	N/A[3]	96	B
	OR 99 (NB)	N/A[3]	14	A	N/A[3]	21	A
	Blackwell Road (SB)	N/A[3]	136	C	N/A[3]	497	F
	Blackwell Road (SBR)	N/A[3]	59	A	N/A[3]	208	D
Blackwell Road at Kirtland Road	Blackwell Road (EB)	0.19	<20	A	0.23	22	A
	Blackwell Road (WB)	0.46	0	N/A[4]	0.51	0	N/A[1]
	Kirtland Road (SB)	2.28	1119	F	2.97	N/A[2]	F

[1] Queue length may be greater than calculated.

[2] Queue length cannot be calculated with such a high v/c ratio.

[3] Traditional analysis methods do not provide a method for calculating the v/c ratios for this unique intersection configuration. See Appendix B for discussion.

[4] The LOS of a major street with no traffic control is not defined.

3.3 Safety and Crash Analysis

Crash data was analyzed for three primary reasons: (1) to identify existing crash patterns that may reveal a specific safety deficiency, (2) to determine the probable causes of crashes with respect to drivers, highways, and vehicles, and (3) to develop measures that will reduce the rate and severity of crashes.

The safety analysis included a review of the ODOT supplied Planning Research Corporation (PRC) crash listings (2000 through 2002), ODOT Safety Priority Index System data, and the calculated crash rates compared to statewide averages. The procedures used to analyze this data are described in Appendix E.

The process for analyzing the safety data provided was to determine the location and frequency of crashes occurring in the study area. Crashes were totaled by segment and by

intersection. After being summarized and placed into the appropriate segment, intersection and segment crash rates were calculated.

3.3.1 Study Area Findings

Crashes were summarized by location for each of the four study intersections and the merge point for southbound I-5 off ramp and OR 99. Figure 9 shows the location and the number of crashes that occurred between 2000 and 2002. The figure shows that none of the segments have more than five crashes in the last three years. Segment crash rates were calculated for the segments surrounding interchange 35 that had crashes between 2000 and 2002. The number of crashes was taken from the PRC reports and includes the crashes on the segment only. It does not include crashes within the influence area of the intersections. Table 2 shows these segments with the statewide comparable crash rates.

Table 2. Segment Crash Rates

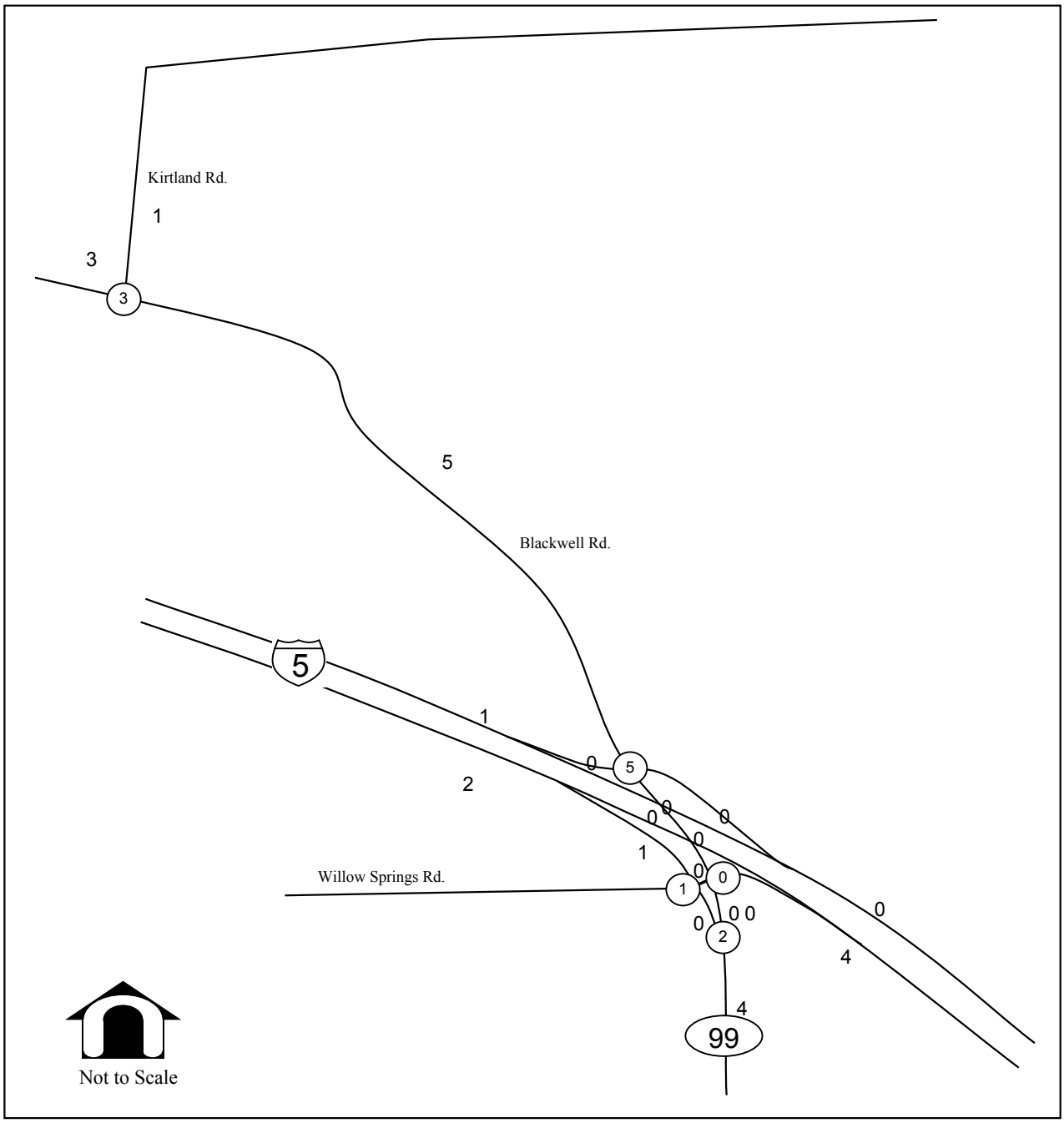
Segment	Length	ADT	Crashes	3-Year Crash Rate	Statewide Crash Rate
I-5: North of Interchange	0.50	36,100	3	0.15	0.24
I-5: Between On-/Off-Ramps	0.19	34,500	1	0.14	0.24
I-5: South of Interchange	0.41	33,000	4	0.27	0.24
SB Off-Ramp: I-5 to Willow Springs Road	0.27	4,300	1	0.79	0.80
OR 99: Willow Springs Rd to MP 1.00	0.73	7,500	4	0.67	0.80
Blackwell Rd: NB Ramp Terminal to Kirtland Rd.	1.27	6,700	5	0.54	-

The comparable statewide crash rates listed above were taken from the ODOT Crash Rate Tables. The value in the table is the average of the rates from 2000, 2001, and 2002. Each of the segments listed above is below the comparable statewide average except for the segment just south of the interchange on I-5. Once crashes were sorted by location, it was then possible to calculate intersection crash rates. Table 3 shows the average daily traffic (ADT) that was determined for each intersection and the calculated crash rates.

Table 3. Intersection Crash Rates

Intersection	ADT	Crash Rate
I-5 SB Off Ramp @ OR 99 (Merge)	6900	0.26
I-5 SB Off Ramp @ Willow Springs Road	3700	0.25
Willow Springs Road @ OR 99	7400	0.00
I-5 NB Off Ramp @ OR 99	8600	0.53
Blackwell Road @ Kirtland Road	8700	0.31

Each of the intersections surrounding interchange has a low crash rate. The statewide average for rural facilities similar to those of OR 99 is 0.80, 0.79, and 0.82 for 2002, 2001, and 2000 respectively.



DAVID EVANS AND ASSOCIATES INC.

LEGEND

(#) = Number of Intersection Crashes

= Number of Segement Crashes

Figure 9

3-Year Crash Summary

01/01/2000 - 12/31/2002

Interchange 35

Five crashes occurred at the intersection of the northbound off-ramp at OR 99 in the last three years. Three of the crashes were single-vehicle crashes with the driver going too fast for the traffic road or weather conditions. Of the remaining two crashes, one was a rear-end crash and the other was a turning crash.

3.3.2 Safety Conclusions

Analysis of the crash data revealed that a small number of crashes occurred in the Interchange 35 planning area between 2000 and 2002. The northbound ramp terminal had five crashes with no recurring pattern. At least one of those crashes resulted from a driver on the northbound approach of OR 99/Blackwell Road failing to yield to an oncoming, left-turning vehicle. This intersection has an unconventional traffic control application that forces northbound vehicles on OR 99 to stop. One crash occurred at the intersection of the I-5 southbound off-ramp with Willow Springs Road. The southbound approach to this intersection, which is a free movement, is often blocked by queuing generated by the adjacent intersection to the east (Willow Springs Road / I-5 on-ramp at OR 99).

Though the number of documented crashes is small, several elements of the current interchange configuration are unsafe. These include the unconventional intersection stop control at the northbound ramp terminals and the intersection of I-5 southbound off-ramp with Willow Springs Road. The low crash rates could be largely attributable to a significant proportion of drivers with local knowledge of the interchange. As regional and statewide traffic through the interchange increases (including trucks), an increase in unfamiliar drivers could result in increased crashes.

Construction of Configuration 1 interchange improvements are recommended as the primary countermeasure to mitigate the safety hazards noted above. These interchange improvements would eliminate the geometric deficiencies that create the need for unconventional intersection control at the northbound of-ramp terminals. Configuration 1 interchange improvements would also eliminate the hazardous crossing of Willow Springs Road with the I-5 southbound off-ramp. The resulting configuration would create a single, signalized intersection consisting of OR 99, I-5 southbound on- /off-ramps, and Willow Springs Road.

3.4 Planned and Programmed Projects

Both Jackson County and ODOT were asked to provide any planned or programmed projects in the area surrounding Interchange 35. In the Regional Transportation Plan (RTP), I-5's functional classification is Interstate; OR 99 is Arterial; Blackwell Road is a Major Collector north of the interchange; Scenic Ave is a Minor Collector. OR 99, Blackwell Road and Kirtland Road are all designated as Metropolitan Planning Organization Freight System Roads.

The following Jackson County and ODOT projects are currently planned near the interchange.

3.4.1 Realignment of Blackwell Road and Kirtland Road

ODOT has identified the need to realign the intersection of Blackwell Road and Kirtland Road. The southbound approach from Kirtland Road is currently operating with a poor LOS. This project has been identified for the federal fiscal year of 2009, but is not yet in the approved STIP.

3.4.2 Seven Oaks Bridge Package Project

The Seven Oaks Bridge Package includes two railroad bridges in addition to the OR 99/Blackwell Road Overpass (ODOT Bridge No. 08539) discussed in this Interchange Area Study. Design work is underway on replacement bridges for the I-5 northbound (ODOT Bridge No. 07777B) and southbound (ODOT Bridge No. 07777) structures crossing over the CORP Railroad. All three bridges are OTIA III Stage 1A projects.

This Interchange Area Study was undertaken because of the need to resolve specific issues relating to the replacement of the Blackwell Road Overpass structure and to address safety issues.

3.4.3 Scenic Avenue Bike/Pedestrian Project

The Rogue Valley RTP includes a bike/pedestrian project on Scenic Avenue, running from Old Stage Road to Grant Road. The project is listed as a Tier 1 – Long Range (2011-2023) project, and includes widening Scenic Avenue to meet rural two-lane cross section standards with a shoulder bikeway.

4 EXISTING ZONING AND LAND USE

This section provides an overview of the existing land uses, vacant/developable land, property ownership, and land use regulations within the interchange analysis area. The information included anticipates future growth and development patterns around these interchanges that will influence the transportation system. Appendix D contains a full review of development opportunities that are permitted under current zoning and consistent with adopted land use plans. This analysis was performed to identify potential impacts to existing and future land use patterns that may affect the interchange or influence the design of future improvements.

As summarized in the Review of Transportation and Land Use Plans and Policies (Appendix D) and shown on Figure 10, the existing zoning in the interchange analysis area includes Exclusive Farm Use (EFU), Interchange Commercial (IC), Rural Residential (RR-5) and General Industrial (GI). There are three parcels zoned RR-5 (five-acre minimum lot size) to the west of Erickson Air Crane, two north and one south of Willow Springs Road. There are two other areas zoned RR-5 in the IAMP study area. An area south of the interchange, along Seven Oaks Road and off Eric Avenue, is zoned RR-5, as are several parcels along Lark Lane. This area lies to the north of, and is outside, the City of Central Point's UGB.

Most of the land in the interchange analysis area is in active farm use (mostly pasture and hay with some row crops) and physical improvements are limited to buildings and residences related to farm use.

The Existing Soils, Agriculture, and Natural Resources Narrative (see Appendix F) notes that there are wetlands identified on the National Wetlands Inventory map within the interchange analysis area, most notably along Bear Creek. Floodplain areas are located by Willow, Dean, and Bear Creeks.

There is one resource, a bungalow on the Cascade Florist and Nursery property at 6389 Blackwell Road that is potentially eligible for National Register of Historic Places. ODOT has not completed a Determination of Eligibility.

4.1 Commercial

Just north of the interchange, between I-5 and Blackwell Road, there are four properties, comprising approximately 4.7 acres, zoned IC. The Cascade Florist and Nursery is located here and two other properties are in farm use (one with an associated residence). Only one of the four parcels, approximately a half-acre, is considered vacant.

Limited commercial uses are permitted in EFU. The Seven Oaks Farm at 5526 Rogue Valley Highway has a stand that sells to the general public.

While there are large industrial parcels in active use along OR 99 and the Central Oregon Pacific rail line to the north of the interchange, the Erickson Air Crane property on Springs Road is the only property zoned for industrial uses in the interchange analysis area. The

manufacturing of helicopters and aviation uses are consistent with the allowed uses in the GI zone (Type 2 permit process). The approximately nine-acre Erickson site is fully built out. Land surrounding the campus currently is zoned EFU and is in farm use with an associated residence.

There are some residentially zoned parcels in the planning area. All of the parcels zoned RR-5 west of Erickson Air Crane and along Lark Lane, and most of those at Drake and Eric avenues currently have existing residences and farm buildings. These parcels are all less than five acres and not eligible for future subdivision or additional residential buildings. There are two vacant parcels in the Eric/Drake Avenue cluster that may develop with a residence in the future (2798 and 2624 Eric Avenue). Both of these parcels are smaller than five acres and could not be subdivided.

5 FUTURE LAND USE ANALYSIS

This section summarizes future land use assumptions in the vicinity of Interchange 35. Existing land uses, and the regulations that apply to the land, provide an indication of the intensity of development and the potential for development and redevelopment. Factors such as designating the area an urban reserve, private property interests, and future transportation enhancements to the interchange, are all forces that could lead to intensifying the land uses in the vicinity of the interchange. However, before any intensification of land uses in the interchange vicinity can be allowed, the City of Central Point will need to demonstrate and justify the need for urban uses and the suitability of this area for supporting urbanization.

5.1 Uses on Exclusive Farm Use

The predominant zone in the interchange analysis area is EFU. Under the current County zoning, future development is very limited in the vicinity of Interchange 35. Statewide Planning Goal 3, Agricultural Lands**,** requires that agricultural lands be preserved and maintained for farm use. The goal is implemented through zoning that limits uses on agricultural lands to "farm uses and those non-farm uses defined by commission rule that will not have significant adverse effects on accepted farm or forest practices." Such zoning is commonly referred to as "exclusive farm use" zoning.

Goal 3 and Oregon Revised Statute (ORS) 215.780, Farm and Forestland Zones, also require counties to establish minimum sizes for new lots or parcels in each agricultural land designation. ORS 215.780(1)(a) (uses permitted in EFU) provides that for land zoned for EFU and not designated range land, the minimum lot or parcel size shall be at least 80 acres. This is the minimum lot size applicable to the EFU-zoned lands in the County, in the vicinity of the interchange.[1] OAR 660 Division 33 further limits uses on high value agricultural lands; the land in the interchange planning area is predominantly high value farmland. Appendix F contains a more detailed description of the soil classifications.

5.2 Regional Problem Solving

The State of Oregon has recognized the Greater Bear Creek Valley as a Regional Problem Solving (RPS) area as defined and authorized by ORS 197.654. The significance of the RPS process is that the Department of Land Conservation and Development may acknowledge amendments to comprehensive plans and land use regulations that do not fully comply with the rules that implement the statewide planning goals. While the Commission may acknowledge amendments or new regulations that do not fully comply with the land use

[1] Jackson County implements Goal 3 through its Exclusive Farm Use (EFU) District (Section 5.2.1) and Forest Resource and Woodland Resource (Section 5.2.2). The minimum lot size in these districts is 80 acres. See Jackson County Land Development Ordinance, Chapter 5, Zone Districts, and Table 8.2-1: Table of Density and Dimensional Standards.

OARs, the agreements reached by the RPS process will need to be found in conformance with the statewide planning goal requirements and applicable state statutes.

Jurisdictions in the Greater Bear Creek Valley agreed to participate in a land use planning process with the primary purpose of collaboratively identifying areas of Jackson County where it is desirable and appropriate to accommodate future growth at urban levels of density. The City of Central Point passed a resolution that identifies three areas as urban reserves candidate growth areas. [2] One of these areas, Central Point-1 (CP-1), includes the central third of the interchange analysis area, stretching linearly from Central Point city limits, between OR 99 and I-5 (and OR-99 and Blackwell Road, to the north of the interchange).

While the interchange analysis area is north of the Central Point UGB, the City identified the 1,275-acre area that includes the interchange as having both regional and local significance. The resolution designating it "CP-1" cites the need for a connection between I-5 and OR 62 and the fact that the City and County have considered it an area of Mutual Planning Interest[3] for 20 years. While the City's intent for this area is clear, Jackson County and the State have not publicly supported intensifying land uses in the area.

It is anticipated that the background information contained in this study including the traffic analysis can be used in the RPS process.

5.3 Urban Reserve Planning

If the City of Central Point were to pursue the CP-1 candidate growth area as an area of future urban expansion location, regardless of the outcome of the regional planning process, there are several steps that must be taken before this area is available for urbanization. Currently, this is not an urban reserve that has been acknowledged by the Land Conservation and Development Commission (LCDC).[4] The likelihood of the city-approved candidate

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[2] The City of Central Point resolved to recommend that the interchange planning area (from the UGB north to the intersection of Blackwell and Tolo roads) be included in the urban reserve (candidate growth area CP-1) with the passage of Resolution 977, May 27, 2003. The Department of Land Conservation and Development has stated in written communications with the City of Central Point that it does not support urban expansion into this area.

[3] The term "Area of Mutual Planning Concern," as defined in the Central Point/Jackson County Urban Growth Boundary and Policy Agreement, adopted by Jackson County 7-29-98 and City of Central Point 7-2-98, File 98-1-UGBA, is a geographical area lying beyond the adopted Urban Growth Area in which the City and County have an interest in terms of that area's types and levels of development, land uses, environment, agriculture, and other unique characteristics. The area is not subject to annexation within the current planning period but may be in the path of longer-range urban growth. The City and County will fully coordinate land use activity in this area.

[4] Per ORS 197.626, a city with a population of 2,500 amending the UGB by 50 acres or more, or that designates urban reserve areas under ORS 195.145, shall submit the amendment or designation to the LCDC in the manner provided for periodic review under ORS 197.628 to 197.650. Currently, the City of Central Point does not have urban reserves, as defined by State Statute.

growth area being designated an urban reserve, or ultimately being included in a UGB expansion[5] is dependent on the growth needs of the City of Central Point and the appropriateness of this area to host the identified land needs to accommodate this growth. To determine future land needs, the City will need to conduct a buildable lands analysis based on the expected population growth; available buildable land supply; and future demand for housing, commercial, and industrial lands within a 20-year planning period (or a 30- to 50-year time frame, if the City is planning for urban reserves). If there is ultimately a need to find buildable land outside the UGB, the City may propose a UGB amendment. This amendment must comply with the requirements of ORS 197.298, which lists the priority of land to be included within the UGB. The City must first look to "exception" or non-resource land, adjacent to the City's UGB on which to expand. [6]Areas considered for expansion must also comply with State Goal 14, Urbanization and the City will need to address seven "factors" to ensure that there will be an "orderly and efficient transition from rural to urban land use."

As of yet, the City has not taken steps to amend the UGB, an area meant to accommodate 20 years of growth, or to designate urban reserves, areas that can accommodate an additional 10 to 30 years of growth. Absent the necessary analysis, it is presently difficult to predict what amount or type of growth to expect in the "CP-1" designated area within the 20-year analysis horizon of this study.

5.4 Potential for Future Growth

The presence of vacant or underutilized parcels is an indicator of growth potential in the vicinity of the interchange. Transportation improvements, such as those planned for Interchange 35, can attract uses that benefit from increased mobility, access or visibility.

Five hypothetical land use scenarios were identified for analysis. Analysis area intersections were evaluated under increased traffic volumes associated with these land use scenarios, and the results are summarized in Section 6 of this report. Note that some of these scenarios are purely hypothetical and may require rezoning and comprehensive plan changes. Some scenarios were developed only to test traffic impacts and may not be viable or other reasons.

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[5] Per ORS 197.298, urban reserves are the first priority of land to be included within the UGB, when a jurisdiction expands the UGB.

[6] The City needs to look at a longer time horizon when planning for urban reserves than for a UGB. State statute requires that a UGB accommodate 20 years of expected growth. The City may choose to develop a land needs analysis for a longer time horizon and to designate urban reserves, thereby designating lands beyond the UGB that will be the first priority for urban expansion.

[8] These uses would be subject to a Type 2 (discretionary administrative) or Type 3 (conditional) review.

5.4.1 Baseline Development Scenario

This scenario models future land uses at an intensity allowed by the current zoning. As most of the interchange analysis area is zoned EFU and is outside a UGB, urban growth is not expected. The only opportunities for intensification of land uses beyond what currently exists is through redevelopment of parcels zoned IC with uses such as a motel, restaurant, convenience store, and/or gas station; addition of one or two farm stands; and possible development of single-family homes on two existing vacant parcels in the Rural Residential at 2798 and 2624 Eric Avenue.

5.4.2 Commercial Node Development Scenario

The fact that Interchange 35 is the first interchange as motorists head south into the Rogue Valley makes the land surrounding the interchange attractive for travel-oriented services, such as hotel/motel, gas stations, and convenience commercial. The pressure to redesignate land for commercial purposes has prompted Central Point planners to anticipate that there will be a commercial node at this interchange within the 20-year analysis horizon. However, Jackson County planners inform potential developers that any development proposal that is not consistent with the EFU zoning must undergo a goal exception process.

The Commercial Node development scenario consists of traveler-oriented services—both tourist commercial and support services for the freight industry—that would develop south of the existing interchange along OR 99 within the 20-year analysis horizon. This scenario assumes that the central portion of the interchange analysis area (between OR 99 and I-5) and the area just north of the interchange will be designated an Urban Reserve, but that growth pressures will not result in urban-level development within the analysis time horizon, beyond the traveler-oriented services.

5.4.3 Industrial Expansion Scenario

Several factors make the area in the vicinity of Interchange 35 attractive for future industrial use. Future transportation improvements to the interchange will improve access to I-5 and will facilitate the movement of goods within the region and to other parts of the state and country. There is already land zoned industrial just west of the interchange, most of which is currently in use by Erickson Air Crane, that may serve as an attractor for other industrial users. House Bill 2011, passed by the Legislature in 2003, with its focus on increasing economic opportunity in the state through the development of industrial sites, also may increase the likelihood of industrial growth in this area.

The Industrial Expansion scenario would have additional industrial development in the vicinity of the Erickson Air Crane site. While there are no formal proposals for Erickson Air Crane expansion in the vicinity of Interchange 35, there is ample vacant land in the area (currently zoned EFU).

5.4.4 Tolo Road Industrial Reuse Scenario

This scenario assumes reuse of the industrially zoned land surrounding Tolo Road, which intersects Blackwell Road just beyond its intersection with Kirtland Road. The Tolo Road

Industrial Reuse Scenario assumes buildout of approximately 160 acres of land currently zoned for industrial use to the northwest of Interchange 35. It was assumed that this land would reach buildout capacity by 2026.

5.4.5 Freight Transfer Facility Scenario

Jackson County has also considered the interchange's strategic location and its potential role in capturing the economic benefits of freight transfer and movement in the region. Jackson County staff has identified the general area around Interchange 35 as a promising location for a freight transfer station. According to staff, the premise of planning for more industrial uses in the vicinity of Interchange 35 is conceptual at present and Jackson County Commissioners have not indicated support for further analysis on the viability of a freight-related industrial hub at this site.

This scenario would have additional industrial uses associated with a freight transfer station to the north of the interchange. Commercial uses would be limited to those services providing support to the freight industry.

5.4.6 Future Land Use Conclusions

Some general conclusions from this examination of existing and possible future land uses around the interchanges include:

- The County's EFU designation, in conformance with OAR 660, Division 33, and the existence of high value, or "prime" farmland in the vicinity of the interchange currently precludes more intensive development or uses in this area.

- Proposed comprehensive plan or code amendments addressing Jackson County's future growth made through the RPS planning process would not need to comply with OAR 660, Division 33. However, allocation of future growth on EFU land would still need to address the seven Goal 14 factors and the hierarchy of land for inclusion within UGBs in ORS 197.298.

- There is less than five acres total of commercially zoned land in the vicinity of the interchange. However, the existing uses are not consistent with the IC zoning. More intensive uses could develop in this area, such as a restaurant, convenience store or an antique store.[8]

- The area zoned GI within the study area is fully developed and utilized by Erickson Air Crane. The presence of existing industrial uses near the interchange, and the fact that there are large, predominantly vacant parcels in the vicinity of the Erickson Air Crane facility (currently zoned EFU), may put pressure on parcels in this area to be rezoned for more intensive, industrial uses in the future.

- Residentially zoned parcels in the study area are largely developed with single-family dwellings. One or two additional residences may be built on existing vacant lots in the future, but the small parcel size of existing residential lots precludes further subdividing.

- The City of Central Point has identified a portion of the interchange analysis area as an urban reserve candidate growth area (CP-1). A change in land use designation from County to City of Central Point and the eventual assignment of urban zoning to this area would be a significant change with the potential of generating many more trips than current land uses.

- Jackson County has informally identified land in the vicinity of the interchange as a possible location for a freight transfer station. A County plan amendment and zone change to enable this use in the vicinity of the interchange could result in an intensification of land uses for industrial purposes.

- The existence of natural resources in the vicinity of the interchange, in particular the three creeks and their associated wetlands and floodplains, also would limit development in these areas. This would have implications on the developability of land if the EFU designation were changed to a different zoning that allowed more intensive uses.

6

6 TRAFFIC OPERATIONS ANALYSIS – ALTERNATE INTERCHANGE CONFIGURATIONS

6.1 Traffic Operations Analysis – Configuration 1

This section summarizes the results of traffic operations analysis conducted for the standard/folded diamond interchange alternative (Configuration 1) under existing and future traffic conditions. Included is an analysis of when signal warrants would be met for this new configuration. The geometric and traffic control features of Configuration 1 are described in Section 1.6.1 of this report.

Figure 11 shows the lane configurations for the standard/folded diamond interchange. 2004 30th highest hour volumes and 2026 design hour volumes are shown in Figures 12 and 13, respectively.

6.1.1 I-5 Northbound On- /Off-Ramps at OR 99/Blackwell Road

Unsignalized Operation

The intersection of OR 99 at I-5 northbound on-/off-ramps and Blackwell Road was analyzed as a stop-controlled intersection with free movements on OR 99 and Blackwell Road legs.

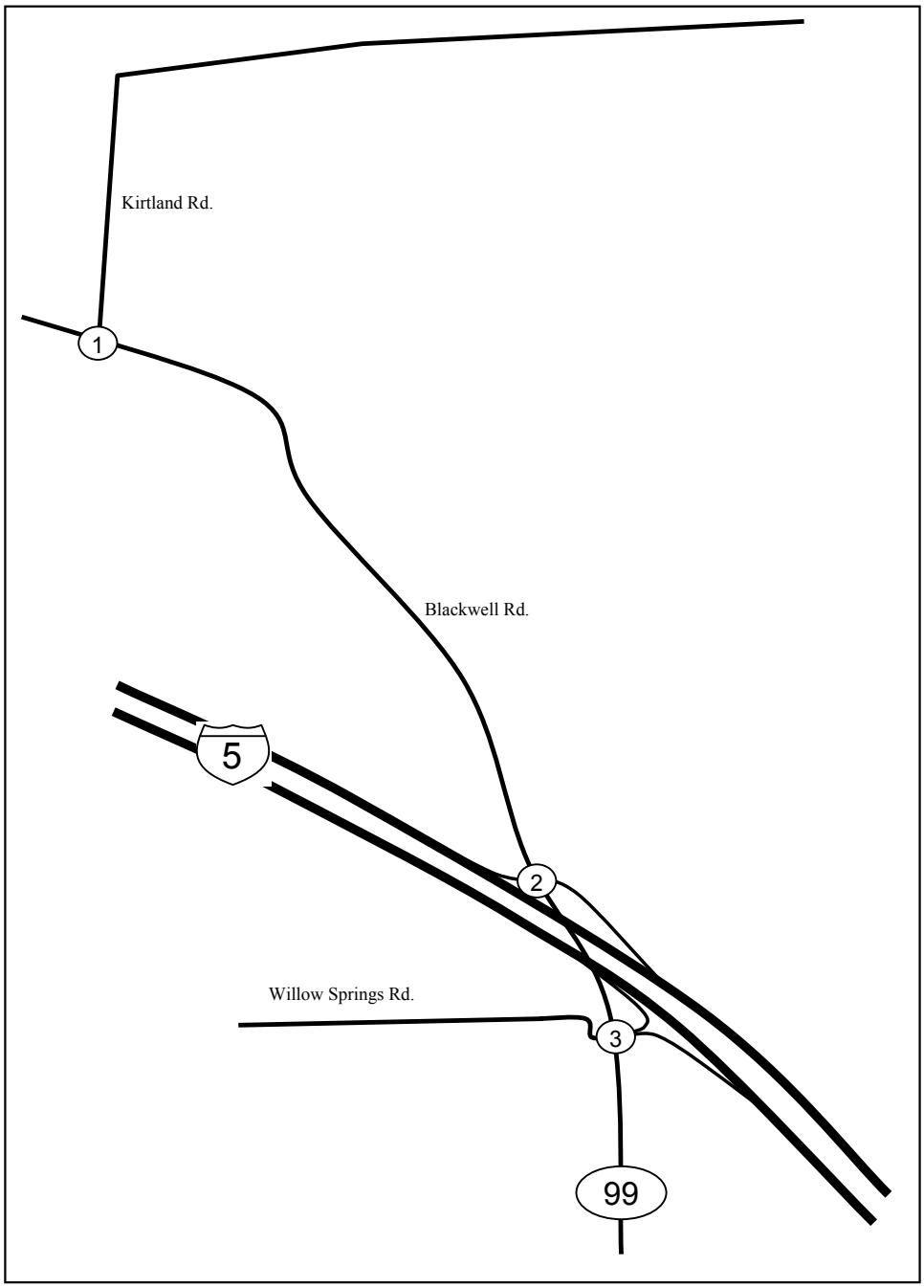
Under 2004 30th highest hour traffic volumes, the intersection would be operating at an acceptable LOS with only the westbound left operating below a LOS B. Under 2026 traffic volumes, the westbound left turn from the I-5 off-ramp would be failing with a v/c ratio of 1.34. The 95th percentile queue length reported by Synchro was approximately 150 feet. However, the Gard method[9] returns a 95th percentile queue length of 225 feet. This methodology has been found to be as or more accurate than the methods used in the 2000 Highway Capacity Manual or by the "two minute arrival" rule for unsignalized intersections.

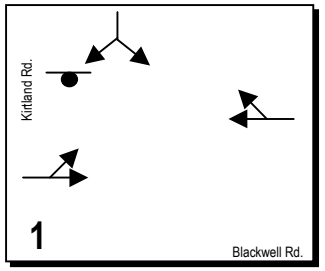
Traffic analysis has shown that the intersection will exceed OHP v/c standards under 2026 design hour volumes. Of particular interest is what year the v/c standard will be exceeded. Using the growth rates developed for calculating the design hour volumes, it was determined that the northbound ramp terminal would reach a v/c ratio of 0.75 in 2017. This assumes that the lane configurations do not change and that the intersection remains unsignalized.

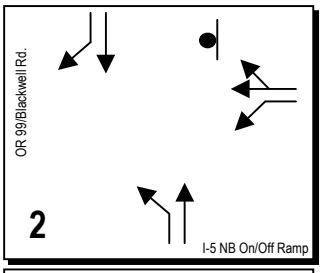
Signalized Operation

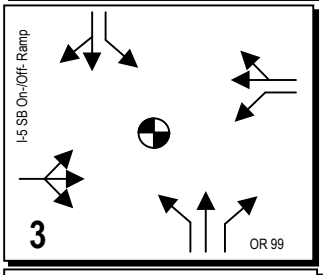
Traffic signal operations were only analyzed for 2026 volume conditions because the ramp terminal currently operates at an acceptable LOS under stop control. Under 2026 conditions,

[9] *Gard, John T. "Estimation of Maximum Queue Lengths at Unsignalized Intersections." ITE Journal, Washington, D.C., November 2001.*









Not to Scale

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LEGEND

= Signalized Intersection

= Turning Movement

14 = Intersection Number

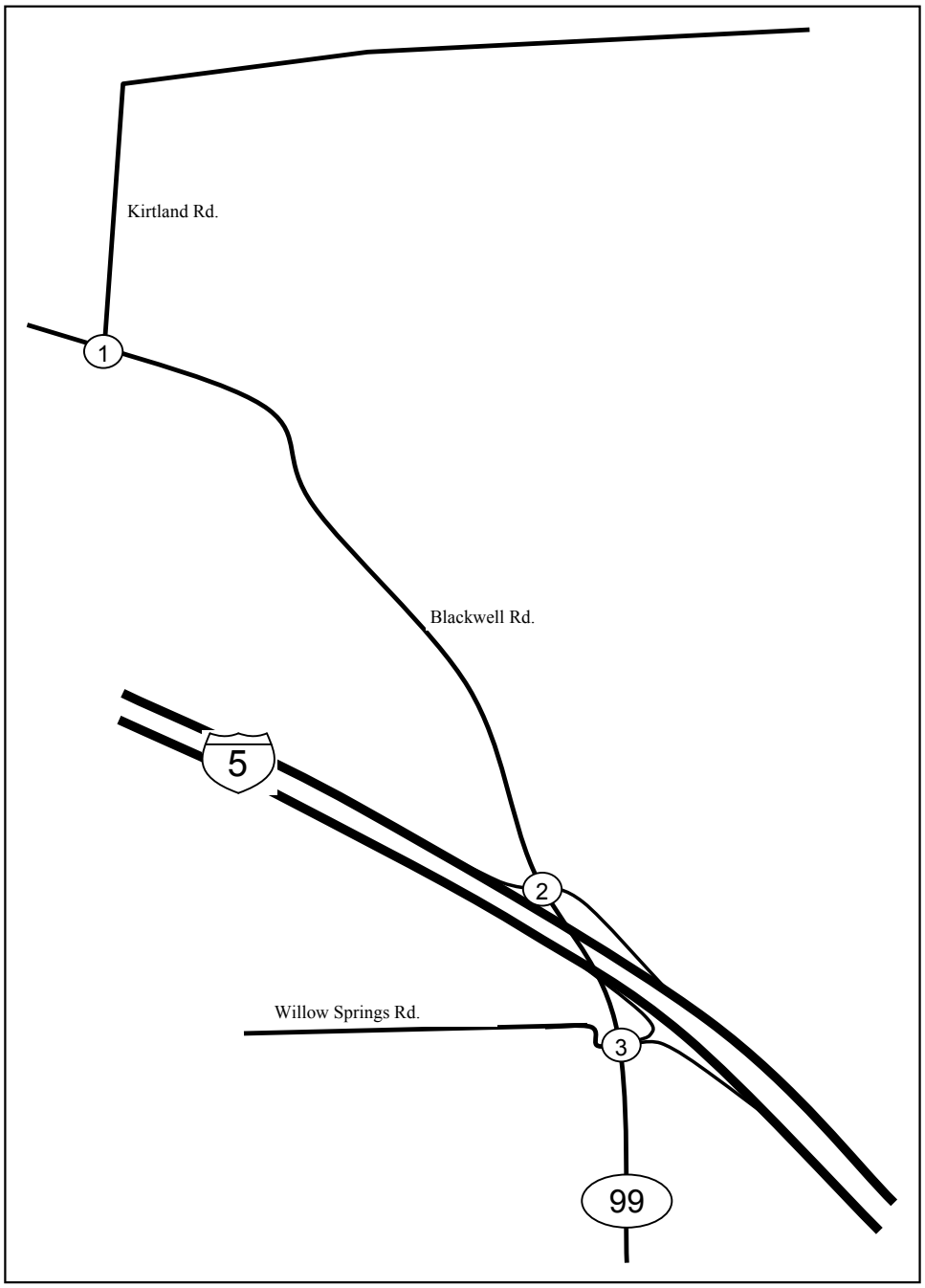
= Stop Sign

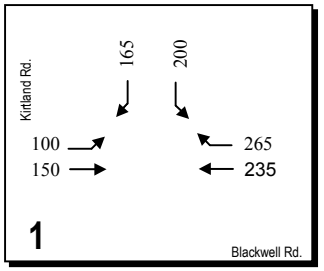
Figure 11

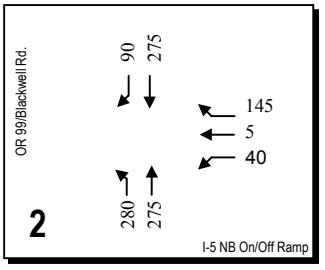
Lane Configurations

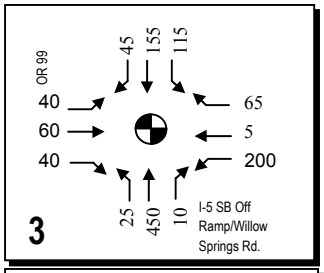
Interchange Configuration 1

Interchange 35









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LEGEND

000 = PM Peak Hour Turning Movement Volume

= Turning Movement

(14) = Intersection Number

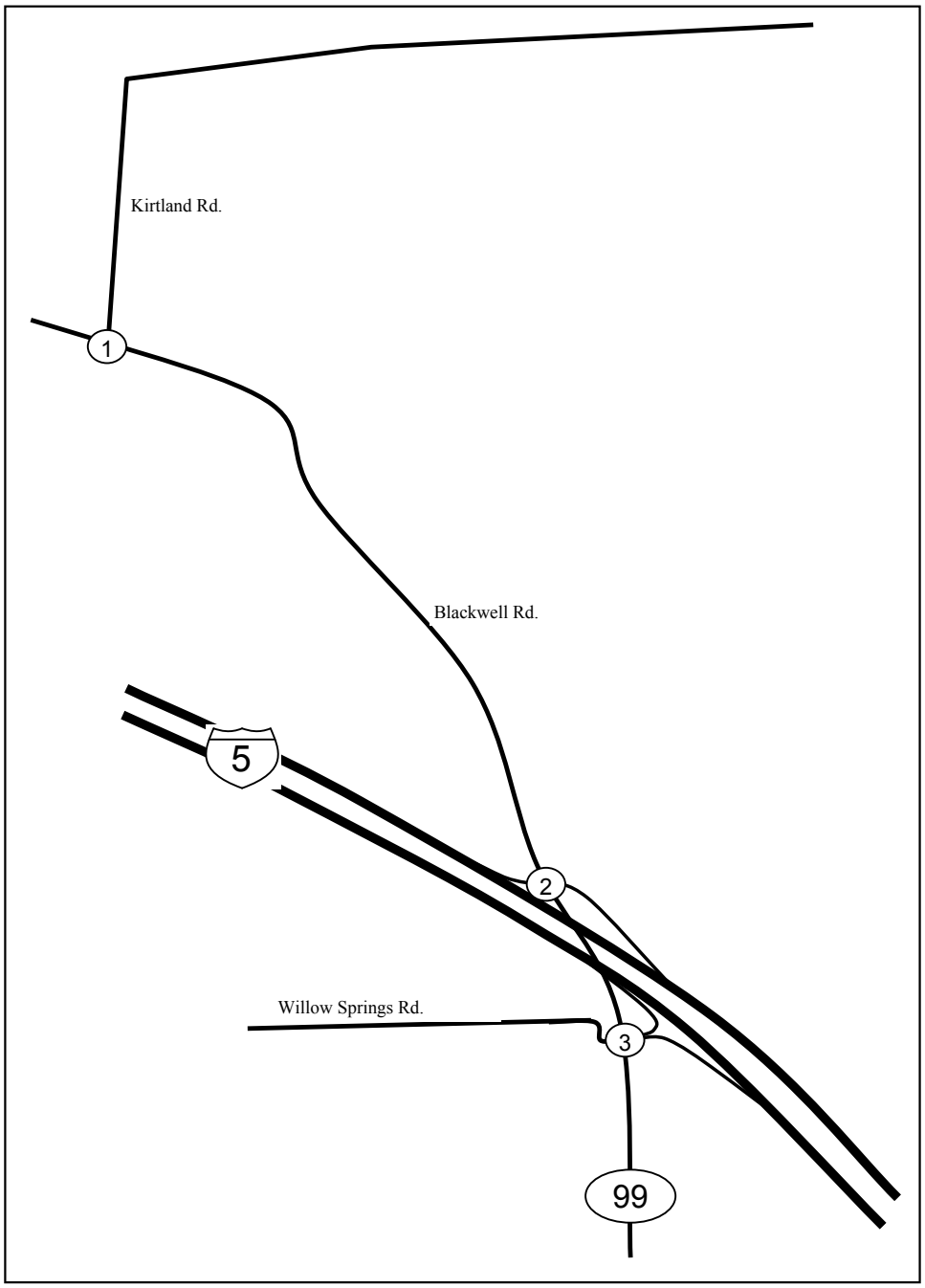
Figure 12

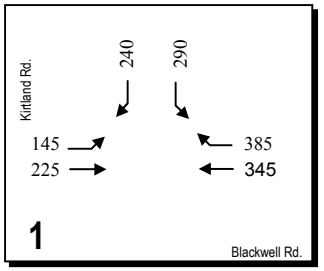
2004 30th Highest Volume

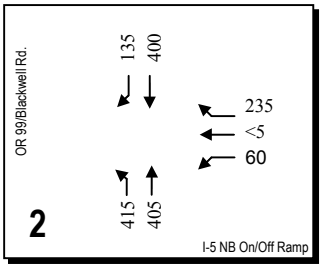
Interchange Configuration 1

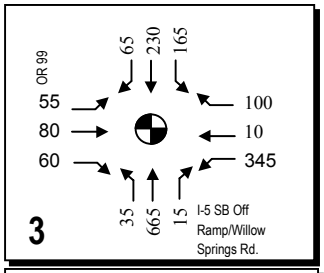
Seasonal Factor = 1.24 (ramps), 1.28 (OR 99)

Interchange 35









DAVID EVANS AND ASSOCIATES INC.

LEGEND

000 = PM Peak Hour Turning Movement Volume

= Turning Movement

(14) = Intersection Number

= Signalized Intersection

Figure 13

2026 Design Hour Volumes

Interchange Configuration 1

Interchange 35

the intersection is predicted to operate at an acceptable LOS with v/c ratios below the standard of 0.75. 95th percentile queue lengths were calculated using a Poisson distribution.

6.1.2 I-5 Southbound On- /Off-Ramps/Willow Springs Road at OR 99

Signalized analysis for this intersection was performed under two different signal-phasing conditions. The first assumed that the northbound and southbound left turns were permitted movements. The second condition assumed that the north- and southbound left turns were permitted-plus-protected movements. Both cases assumed permitted left turns on the east- and westbound approaches (I-5 ramps/Willow Springs Road). Table 4 only shows results for the permitted phasing scenario because the protected-plus-permissive scenario did not provide any appreciable operational benefits.

Under 2004 traffic volumes, the intersection operates at an acceptable LOS and v/c ratio. However, under 2026 conditions, the intersection v/c will exceed the OHP mobility standard with an overall v/c ratio of 0.94.

Table 4 summarizes analysis results for current and future year traffic volume conditions under Configuration 1.

Table 4. Operational Analysis Summary for Interchange Configuration 1

		2004 30th Hour Volumes			2026 Design Hour Volumes		
		v/c	95 % Queue (ft)	LOS	v/c	95 % Queue (ft)	LOS
I-5 Southbound On- / Off Ramps at OR 99 (Signalized)	*Overall Intersection*	*0.64*	-	*B*	*0.94*	-	*C*
	Willow Springs Road (EBT)	0.35	50	B	0.35	100	B
	I-5 Southbound Off-Ramp (WBL)	0.75	100[1]	C	0.97	300[1]	E
	OR 99 (NBT)	0.59	150[1]	A	0.78	425[1]	B
	OR 99 (SBL)	0.38	50[1]	A	0.92	175[1]	F
I-5 Northbound On- / Off-Ramps at OR 99 / Blackwell Road (Unsignalized)	I-5 Northbound Off-Ramp (WB Left)	0.45	50	F	1.34	150	F
	I-5 Northbound Off-Ramp (WBT / R)	0.29	50	B	0.50	75	C
	OR 99 (NBL)	0.27	50	A	0.39	50	B
	OR 99 (NBT)	0.19	0[2]	-	0.25	0[2]	-
	Blackwell Road (SBT)	0.19	0[2]	-	0.25	0[2]	-
	Blackwell Road (SBR)	0.06	0[2]	-	0.08	0[2]	-
I-5 Northbound On- / Off-Ramps at OR 99 / Blackwell Road (Signalized)	*Overall Intersection*	-	-	-	*0.54*	-	*B*
	I-5 Northbound Off-Ramp (WB Left)	-	-	-	0.41	75	D
	OR 99 (NBL)	-	-	-	0.56	75[3]	A
	Blackwell Road (SBT)	-	-	-	0.44	300	B

[1] 95th percentile volume exceeds capacity; queue may be longer

[2] Free movement

[3] Volume for 95th percentile queue is metered by upstream signal.

6.1.3 Potential UGB Expansion

Of particular interest is what the effects would be if the UGB for the City of Central Point were to expand and encompass the interchange area. If this occurs, the applicable mobility standard would likely increase from 0.75 to 0.85 for both the north- and southbound ramp terminal intersections, as directed by the OHP[10]. Under 2026 volume conditions, the unsignalized northbound ramp terminals are expected to exceed the revised mobility standard by 2019. The signalized southbound ramp terminal intersection would reach a v/c of 0.85 in 2024.

[10] 1999 Oregon Highway Plan, as amended. *Table 6: Maximum Volume to Capacity Ratios for Peak Hour Operating Conditions Through a Planning Horizon For State Highway Sections Located Outside the Portland Metropolitan Area Urban Growth Boundary*

6.1.4 Signal Warrants

A signal warrant analysis was performed to see when traffic volumes would warrant the installation of signals at both the northbound and southbound ramp terminals. *The 2003 Manual on Uniform Traffic Control Devices*[11] specifies eight warrants. Warrant 1 (8-Hour Vehicular Volume) and Warrant 2 (4-Hour Vehicular Volume) were analyzed for this report. See Appendix B for signal warrant analysis details. It should be noted that meeting one or more warrants does not necessarily require the installation of a traffic signal.

Both Warrant 1 and Warrant 2 are met under 2004 traffic volume conditions for the intersection of the I-5 southbound on- /off-ramps at OR 99/Willow Springs Road.

Future operations at the intersection of the I-5 northbound on- /off-ramps at OR 99/Blackwell Road are expected to be poor under stop-control, with the northbound off-ramp operating well above capacity. However, neither Warrant 1 nor Warrant 2 are met under 2026 volume conditions. Traffic associated with development in the interchange area will degrade intersection operations and possibly cause one or more signal warrants to be met. Therefore, signalization should remain an option to address future operational deficiencies at this intersection.

6.2 Traffic Operations Analysis – Configuration 2

Configuration 2, described in Section 1.6.2, would result in significant operational improvements compared to Configuration 1, particularly for the movement from southbound I-5 to southbound OR 99. This movement is forecast to have about 350 vehicles in the year 2026. Under Configuration 1 vehicles making this movement would need to make a left turn through a signalized intersection. Configuration 2 would give these vehicles a free movement. While the traffic operations analysis for Configuration 1 revealed operational deficiencies for this movement prior to 2026, it would be an improvement over existing conditions. Further, as discussed in Section 2.2, a larger interchange improvement project, such as that represented by Configuration 2, is not feasible in conjunction with the forthcoming cracked bridge replacement project due to cost, environmental, and right-of-way concerns.

This section presents traffic operations analysis results under Configuration 2. Analysis was conducted for 2026 traffic volume conditions under four different land use scenarios[12]. Both northbound and southbound ramp terminals were analyzed as signalized intersections. For comparative purposes, the northbound ramp terminal intersection was also analyzed as unsignalized.

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[11] *Federal Highway Administration, Washington, D.C., 2003.*

[12] Note that some of these scenarios are purely hypothetical and may require rezoning and comprehensive plan changes. Some scenarios were developed only to test traffic impacts and may not be viable or other reasons. See Section 5.4 of this report for detailed descriptions of the future land use scenarios.

Under the no-development scenario, substantial increases in traffic between 2004 and 2026 are anticipated, but are attributed to regional and statewide traffic growth rather than new development in the area. Note that the northbound I-5 ramp terminal intersection is expected to operate with very poor v/c under all development scenarios if a signal is not installed.

Traffic control and lane configurations used for Configuration 2 analysis are illustrated in Figure 14[13]. Figure 15 shows Configuration 2 under 2026 design hour volumes associated with background growth only, and does not include volumes associated with any of the development scenarios described in Section 5.4. .

Appendix B contains a detailed discussion regarding the determination of design hour traffic volumes, trip generation, trip assignment, and operational criteria used for Configuration 2 traffic operation analysis.

6.2.1 Baseline Development Scenario

Under Configuration 2 and 2026 volume conditions, the north- and southbound interchange ramp terminals would be operating at a v/c of 0.56 and 0.55, respectively. However, additional development beyond that associated with current zoning could cause intersection operations to exceed the standards. Further, these results reflect signalized intersection control at the northbound ramp terminals. Under stop control, the northbound ramp terminals would operate with a critical v/c of 1.73. Figure 16 shows the additional and total vehicle trips generated by the Baseline development scenario.

This scenario was also analyzed under the Configuration 1 interchange configuration to gauge its adequacy to accommodate growth that exceeds background growth. Under Configuration 1, the southbound ramp terminal will be operating at or near capacity and well above the OHP mobility standard of 0.75 in 2026. The intersection is forecast to exceed this v/c beginning in 2019.

The vehicle trips associated with the three other scenarios exceed that of the Baseline Development Scenario. Therefore, these scenarios were only analyzed under Configuration 2.

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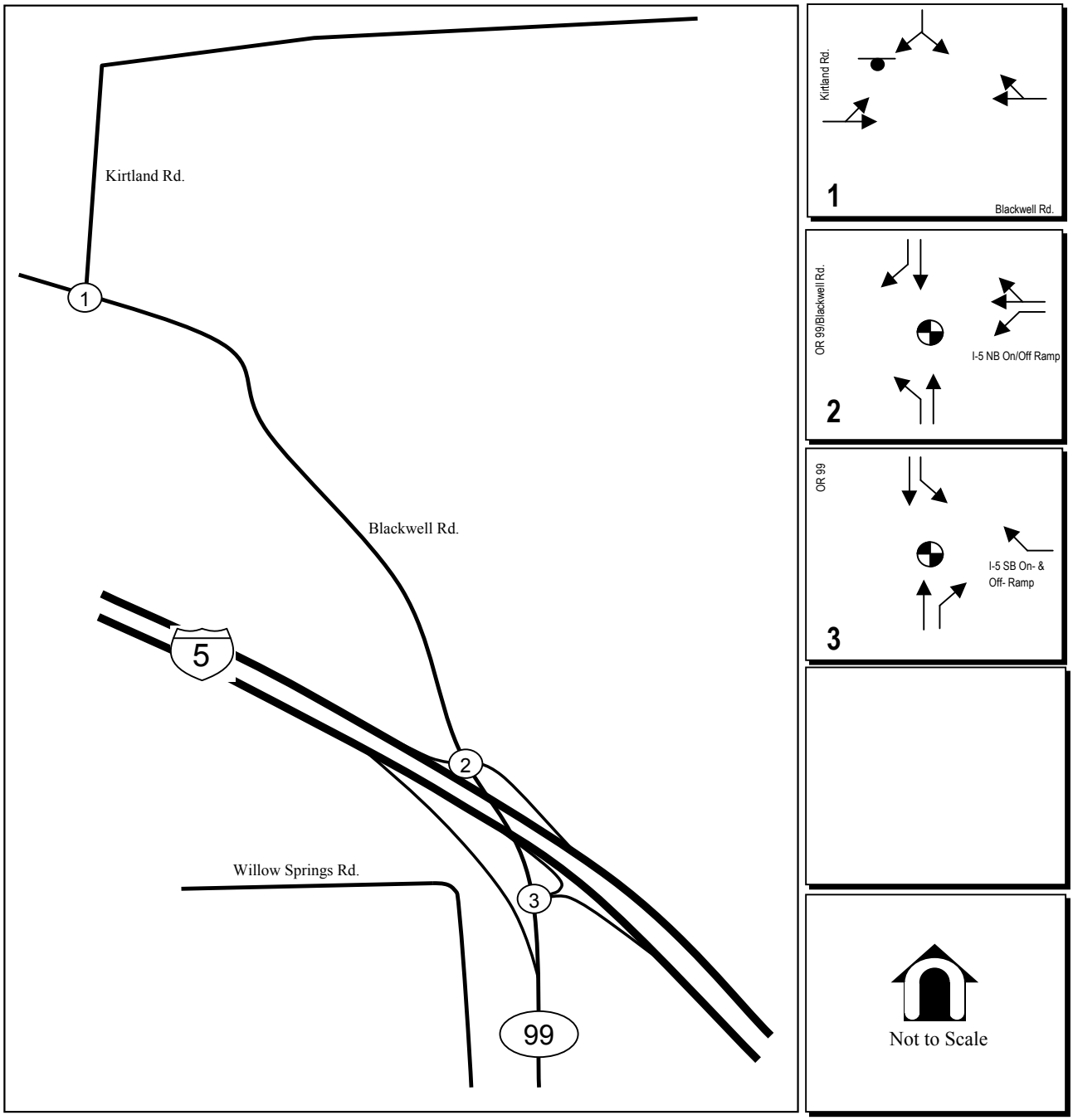
[13] Traffic from southbound I-5 to northbound OR 99 would use the loop ramp. For Configuration 2, the precise configuration of the ramp terminal's intersection with OR 99 and type of intersection control at this intersection has yet to be determined. The actual traffic growth that occurs over the next several years and the percentage of trucks will be key factors in the selection of the design for Configuration 2. The loop ramp will have a 25-mph design speed, and the speed of OR 99 will be at least 45 mph. An acceleration lane of significant length would need to be provided on OR 99 overcrossing—which will have only three lanes—to accommodate a free movement from the ramp to northbound OR 99. This acceleration lane may infringe on required left-turn lane and taper lengths for the intersection of OR 99/Blackwell Road at the I-5 northbound ramp terminals. Analysis conducted thus far has assumed that I-5 southbound to OR 99 northbound would be a signalized intersection, not be a free movement.



DAVID EVANS AND ASSOCIATES INC.

LEGEND

= Signalized Intersection

= Turning Movement

14 = Intersection Number

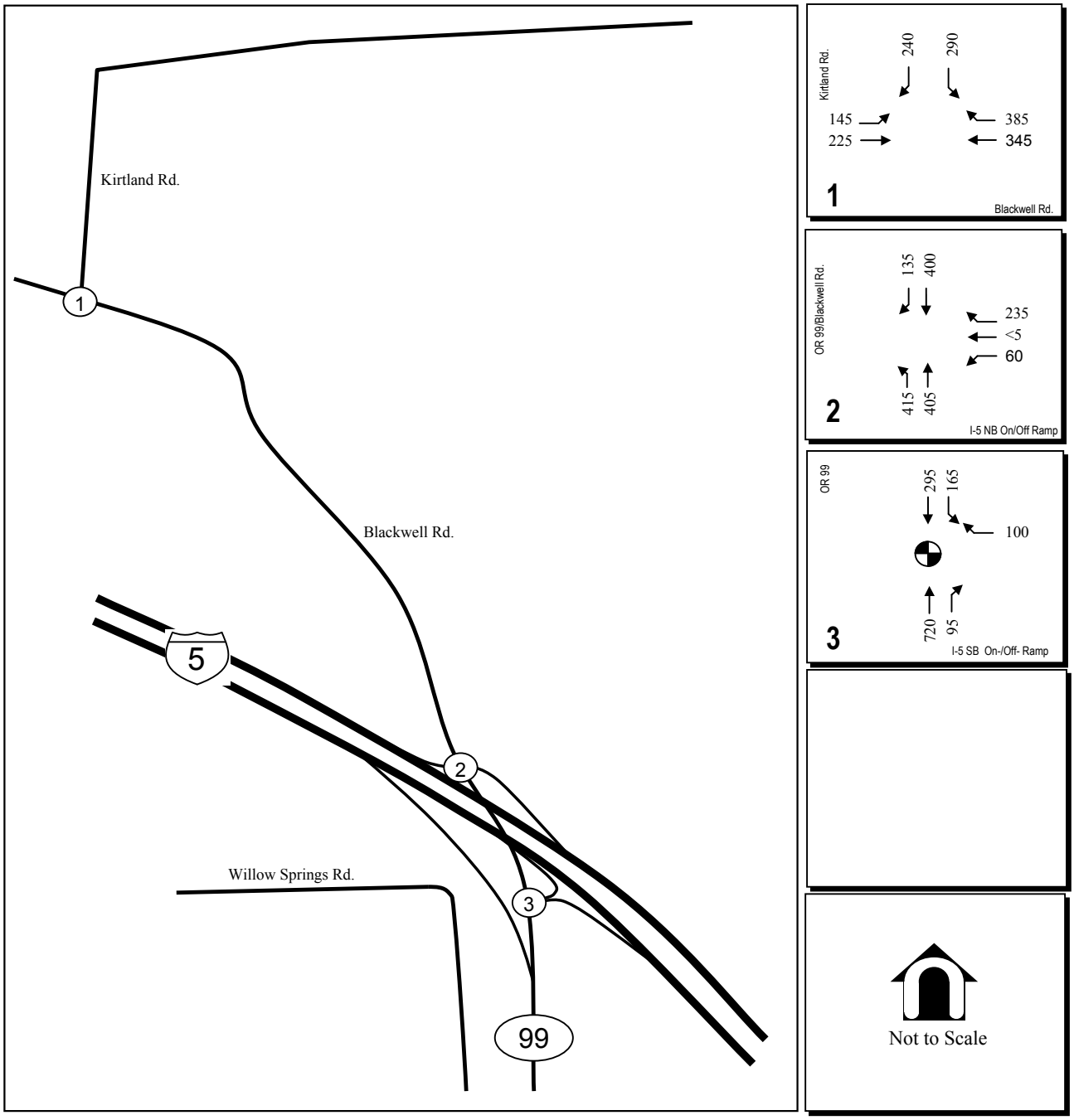
= Stop Sign

Figure 14

Lane Configurations

Interchange Configuration 2

Interchange 35



DAVID EVANS AND ASSOCIATES INC.

LEGEND

000 = PM Peak Hour Turning Movement Volume

= Turning Movement

(14) = Intersection Number

= Signalized Intersection

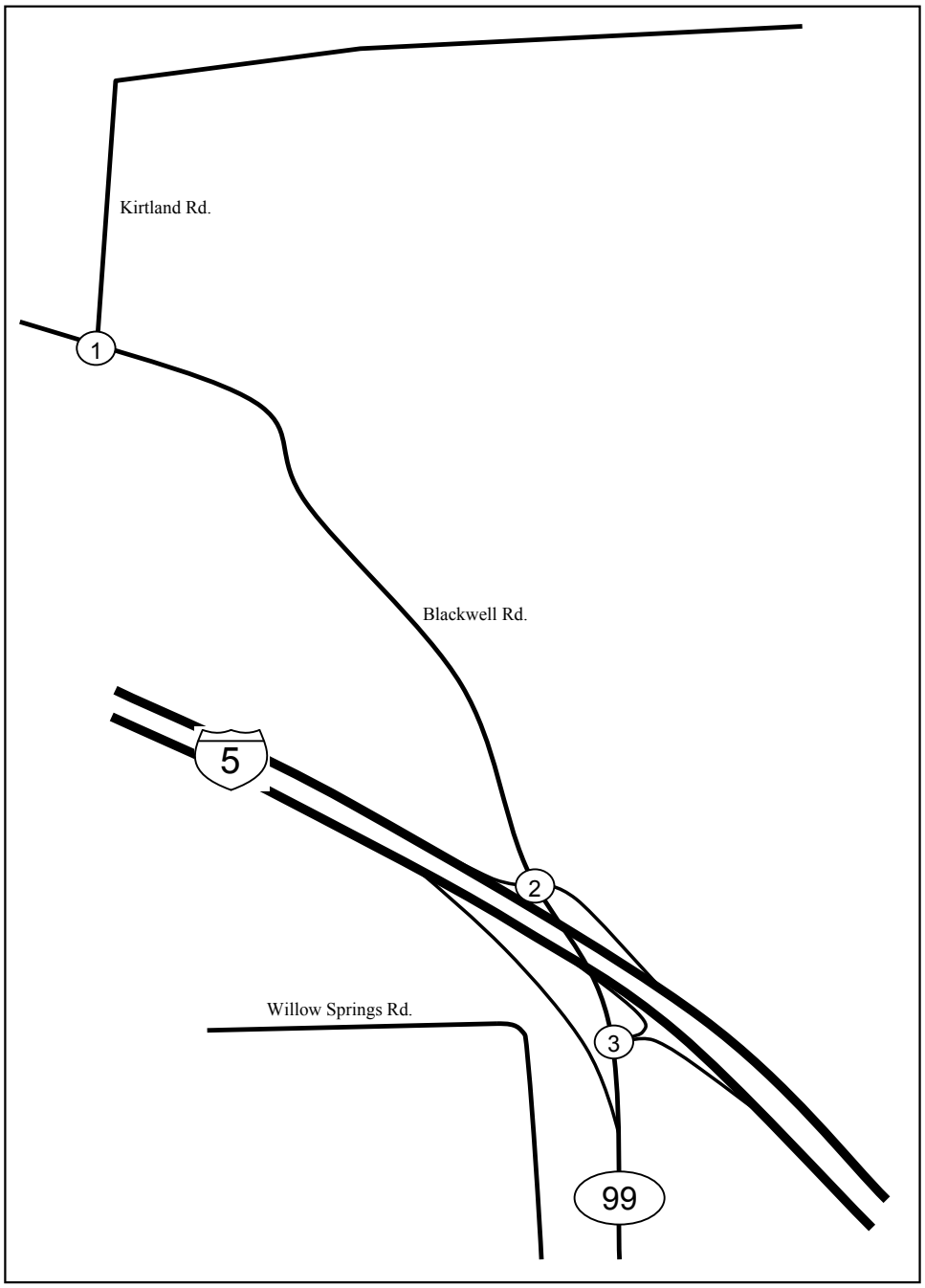
Figure 15

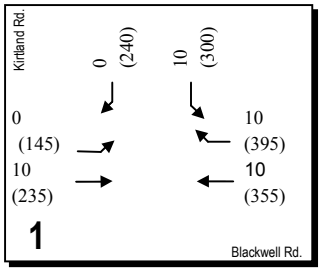
2026 Design Hour Volumes

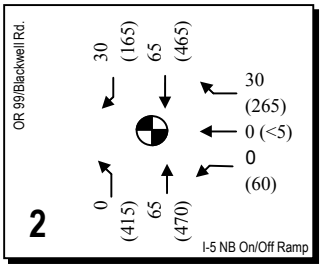
(No-Development Scenario)

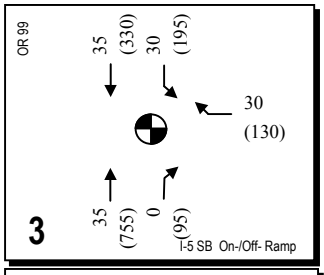
Interchange Configuration 2

Interchange 35









Not to Scale

DAVID EVANS AND ASSOCIATES INC.

LEGEND

00 = Additional PM Peak Hour Trips Generated by Development Scenario

(000) = Total PM Peak Hour Trips

= Turning Movement

(14) = Intersection Number

= Signalized Intersection

Figure 16

Trips From Baseline Development

Interchange Configuration 2

Interchange 35

6.2.2 Commercial Node Scenario

Under Configuration 2 and 2026 volume conditions, the signalized northbound ramp terminal will be operating at a v/c ratio of 0.73. The southbound ramp terminal will be operating at a v/c ratio of 0.56. Figure 17 shows the additional and total vehicle trips generated by the Commercial Node development scenario.

It should be noted that analysis of this land use scenario assumed development of the commercial node only, without any other growth in the surrounding area. It is unlikely that a large shopping center would develop without supporting growth in the area. Additional growth would generate higher traffic volumes at the interchange and further degrade v/c ratios. To accommodate higher traffic volumes, additional lanes would be required at the ramp terminal intersections, and possibly over I-5 as well.

6.2.3 Industrial Expansion Scenario

Under Configuration 2 and 2026 volume conditions, the analysis showed the signalized northbound and southbound ramp terminals to be operating at a v/c ratio of 0.64 and 0.53, respectively. Figure 18 shows the additional and total vehicle trips generated by the industrial expansion scenario.

6.2.4 Tolo Road Industrial Reuse Scenario

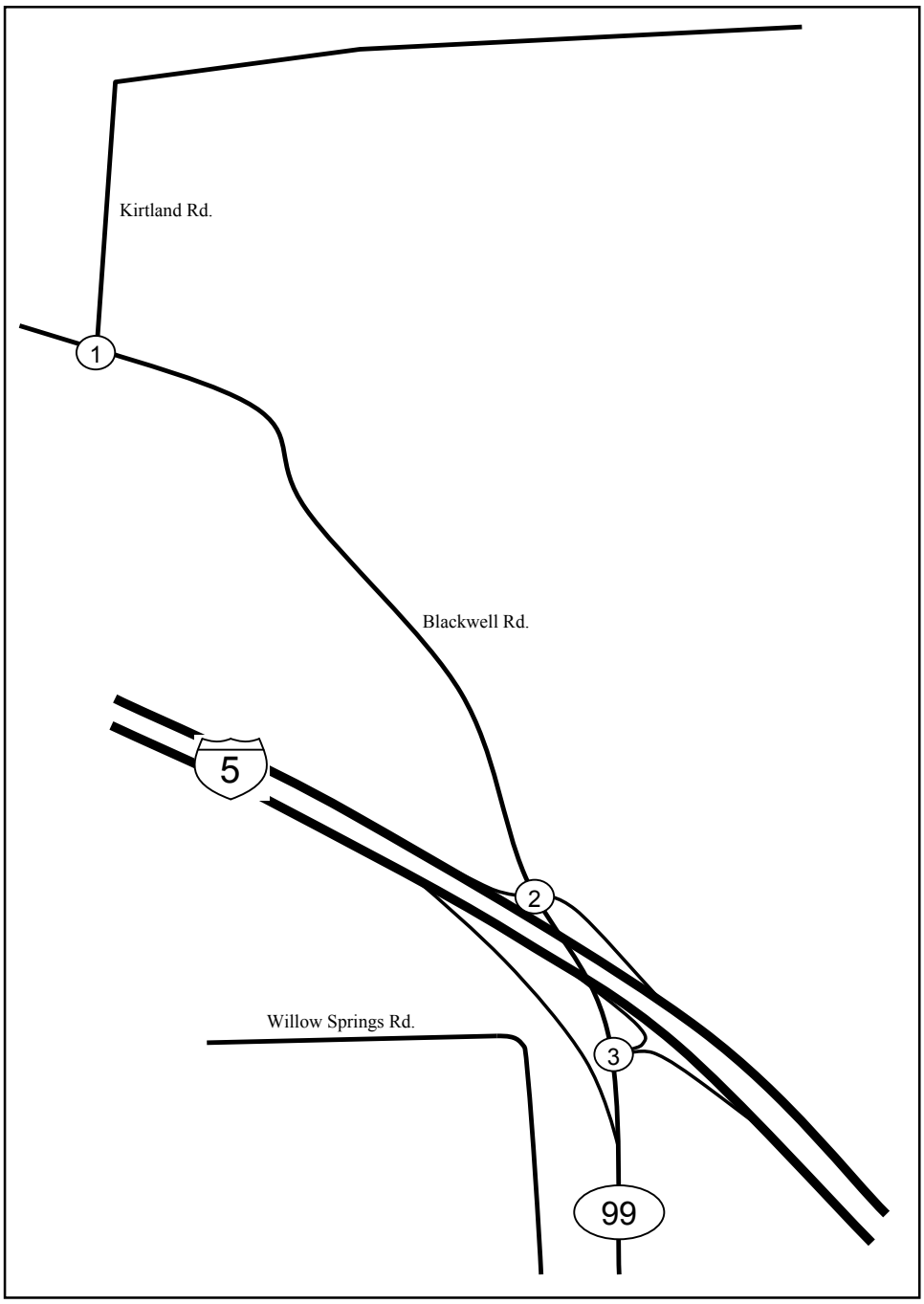
Under Configuration 2 and 2026 volume conditions, the analysis showed the signalized northbound ramp terminals will operate at a v/c ratio of 0.79, which marginally exceeds the OHP mobility standard. The southbound ramp terminals are expected to operate with a v/c of 0.65. Figure 19 shows the additional and total vehicle trips generated by Tolo Road Industrial Reuse scenario.

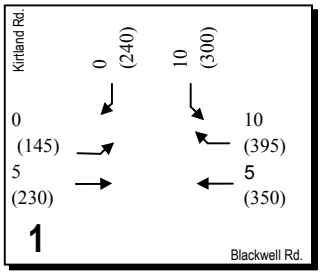
6.2.5 Freight Facility Scenario

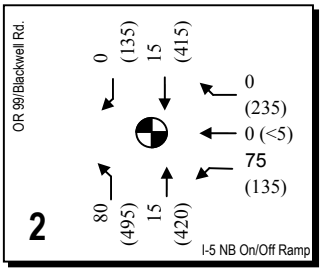
A freight facility has different transportation impacts than most other uses so a detailed traffic operations analysis was not conducted. Instead, a qualitative discussion of the impacts of a freight facility is provided.

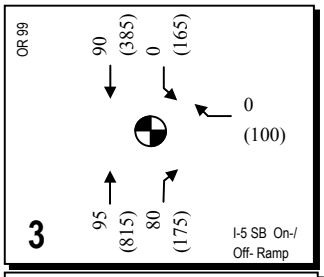
Adding a freight transfer facility within the Interchange 35 area would impact the operations of the interchange, and would require Configuration 2 to be constructed. It is estimated that the v/c ratios for the ramp terminal intersections would approach or exceed the OHP mobility standard, depending on the location and volume of traffic generated by the facility. Further traffic analysis encompassing the unique transportation impacts associated with this type of development would be required if such development were proposed in the future.

Table 5 summarizes the operations analysis for the Baseline, Commercial Node, and Industrial Expansion development scenarios.









Not to Scale

DAVID EVANS AND ASSOCIATES INC.

LEGEND

00 = Additional PM Peak Hour Trips Generated by Development Scenario

(000) = Total PM Peak Hour Trips

= Turning Movement

(14) = Intersection Number

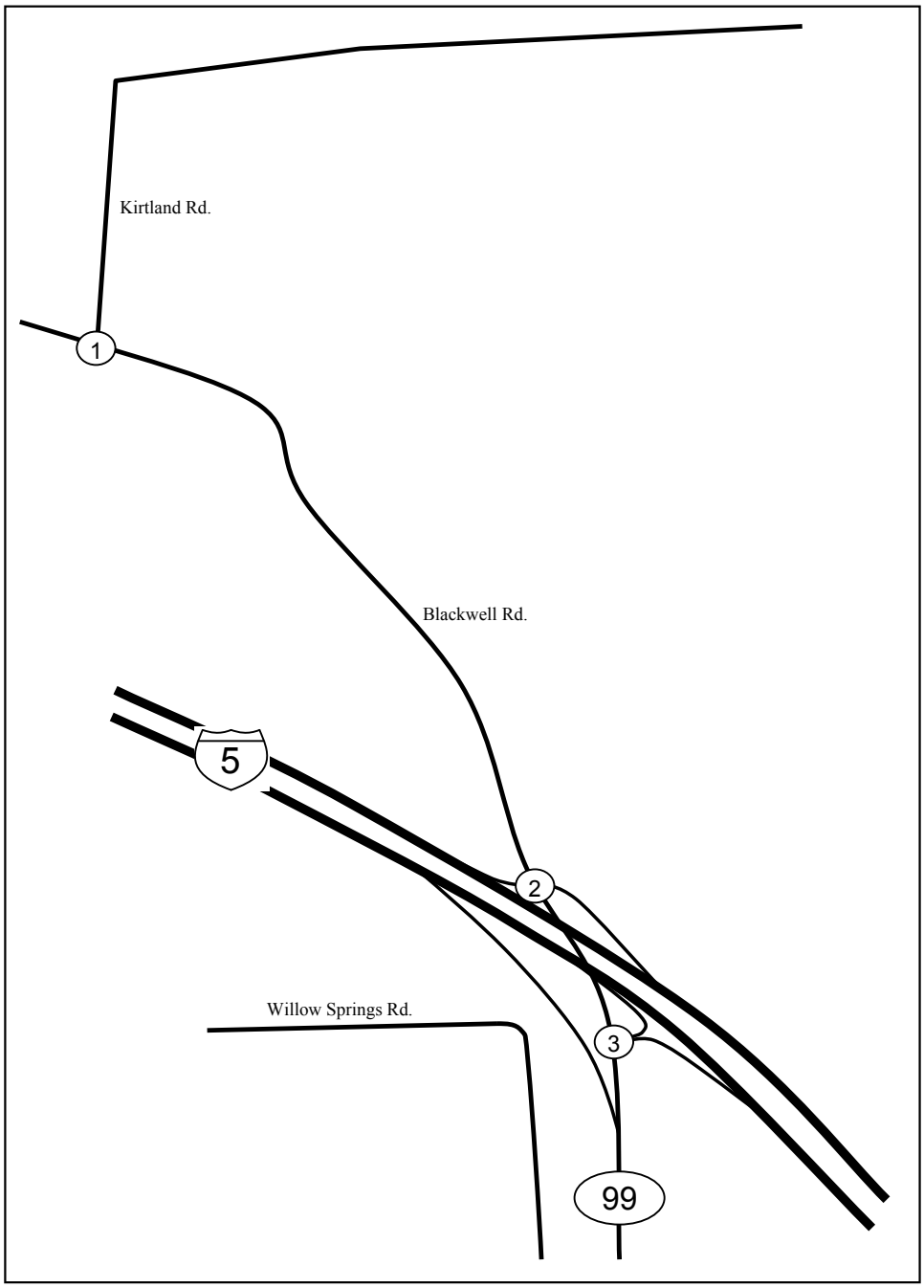
= Signalized Intersection

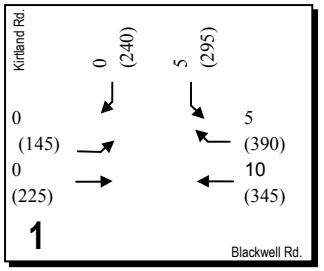
Figure 17

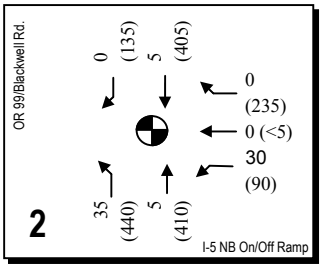
Trips From Commercial Node Development

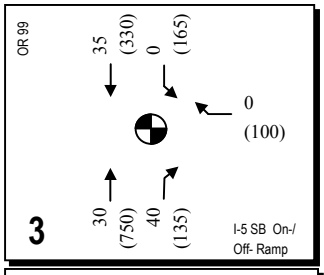
Interchange Configuration 2

Interchange 35









Not to Scale

DAVID EVANS AND ASSOCIATES INC.

LEGEND

00 = Additional PM Peak Hour Trips Generated by Development Scenario

(000) = Total PM Peak Hour Trips

= Turning Movement

(14) = Intersection Number

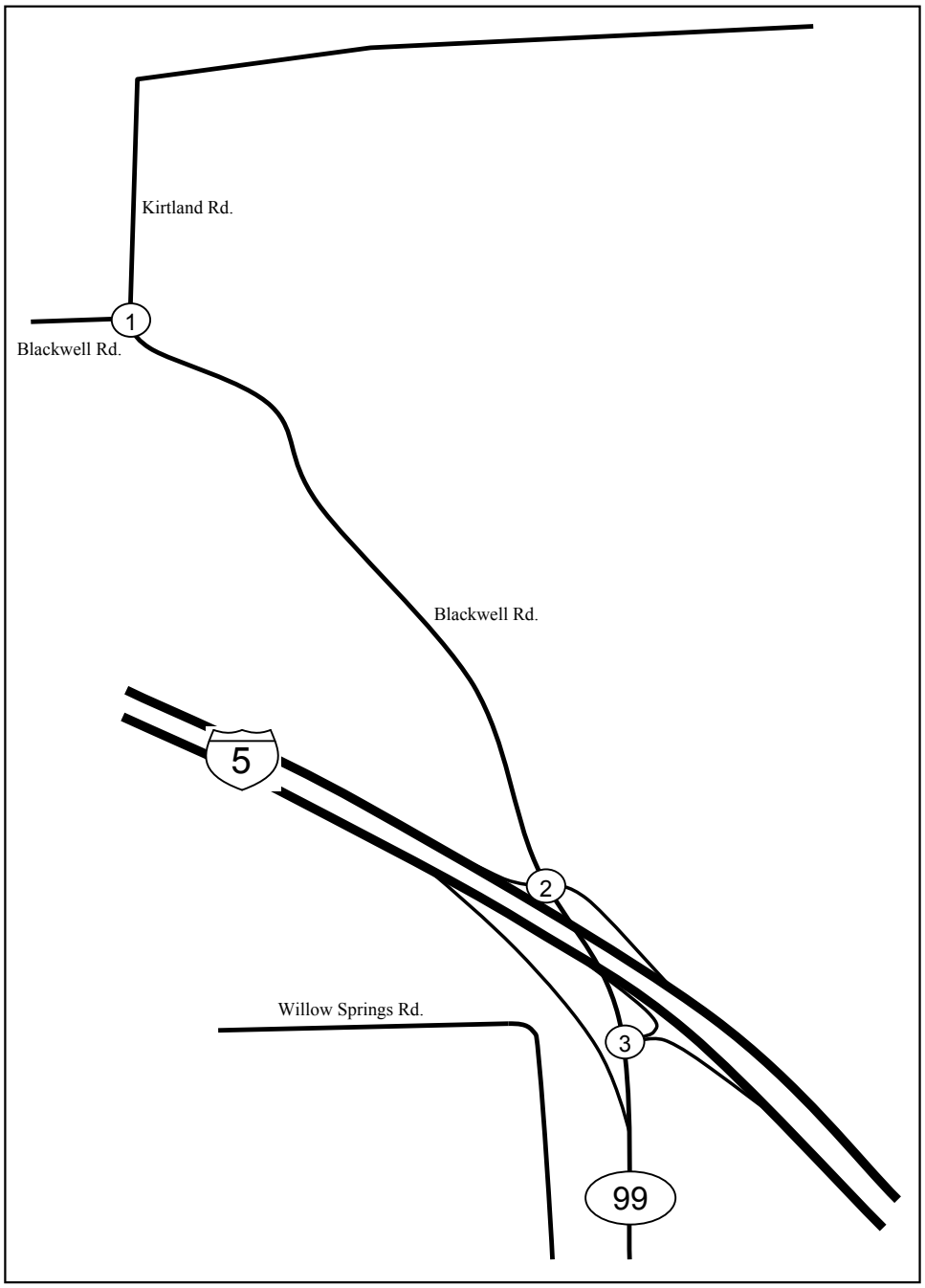
= Signalized Intersection

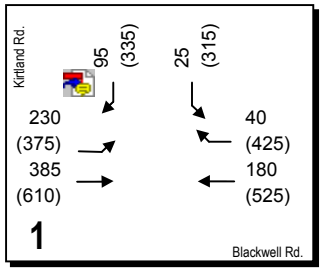
Figure 18

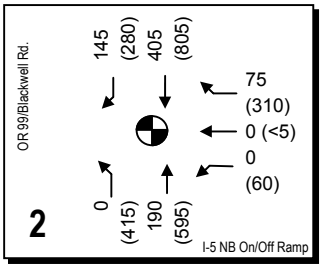
Trips From Industrial Expansion

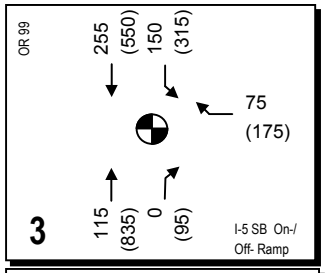
Interchange Configuration 2

Interchange 35









DAVID EVANS AND ASSOCIATES INC.

LEGEND

00 = Additional PM Peak Hour Trips Generated by Development Scenario

(000) = Total PM Peak Hour Trips

= Turning Movement

14 = Intersection Number

= Signalized Intersection

Figure 19

Trips From Tolo Road

Industrial Reuse Scenario

Interchange Configuration 2

Interchange 35

Table 5. Operational Analysis Summary for Various Land Development Scenarios

		Configuration 1		Configuration 2							
		Baseline		Baseline		Commercial Node		Industrial Expansion		Tolo Road Industrial Reuse	
		v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS
I-5 Northbound On- / Off-Ramps at OR 99 / Blackwell Road (Signalized)	*Overall Intersection*	*0.55*	*B*	*0.56*	*B*	*0.73*	*B*	*0.64*	*B*	*0.79*	*C*
	I-5 Northbound Off-Ramp (WBL)	0.40	D	0.40	D	0.66	D	0.54	D	0.46	D
	OR 99 (NB)	0.58	A	0.59	A	0.75	A	0.66	A	0.83	C
I-5 Southbound On- / Off Ramps at OR 99 (Signalized)	*Overall Intersection*	*0.98*	*D*	*0.55*	*A*	*0.56*	*A*	*0.52*	*A*	0.65	A
	OR 99 (SBL)	0.97	E	0.35	D	0.32	C	0.30	C	0.58	B
	OR 99 (NBT)	1.01	E	0.57	A	0.60	A	0.56	A	0.65	A
I-5 Northbound On- / Off-Ramps at OR 99 / Blackwell Road (Unsignalized)	I-5 Northbound Off-Ramp (WBL)	1.73	F	1.73	F	4.65	F	2.30	F	4.80	F
	I-5 Northbound Off-Ramp (WBT/R)	0.62	D	0.62	D	0.57	D	0.52	C	1.04	F
	OR 99 (NBL)	0.42	B	0.42	B	0.48	B	0.42	B	0.57	C

7 ACCESS MANAGEMENT

One of the goals of this Interchange Area Study is to develop an access management strategy that helps preserve the functionality of the interchange, protecting its ability to accommodate traffic volumes safely and efficiently into the future. Access to the roads connecting to the interstate system is vital to the adjacent property owners who need access for their businesses and residences. It has also been shown, however, that a proliferation of driveways and minor street intersections near a ramp terminal can drastically increase conflicts, causing operational problems, decreasing the capacity of the intersections, and generally degrading service for all system users.

The access management strategy must balance the competing needs of traffic capacity and safety for I-5 and the analysis area and local access needs. The OHP devotes an entire section to the discussion of access management. More detailed requirements and the access spacing standards for state highways are specified in OAR 734, Division 51. Ideally, a project will include provisions by which access within the project limits can be made fully compliant with Division 51. In many instances, however, access needed for current parcels will not allow these standards to be met. When the requirements and standards cannot be met, the access management strategy must demonstrate progress toward meeting the applicable standards.

7.1 Spacing Standards

OAR 734-051 and the OHP contain standards for private driveway and public road approach spacing based on highway classifications and speeds. According to these standards, the first full intersection on the crossroad at an interchange should be no closer than 1,320 feet for rural interchanges with two-lane crossroads. This region is referred to as the interchange influence area. Many approaches were constructed within the influence area prior to the implementation of Division 51. Strategies for these approaches are discussed below.

OAR 734-51-0115 (1)(c)(C) and 734-051-0125 (1)(c)(C) require that "for a highway or interchange construction or modernization project…the project will improve spacing and safety factors by moving in the direction of the access management spacing standards, with the goal of meeting or improving compliance with the access management spacing standards." Division 51 access spacing standards apply to both streets and driveway approaches and are measured from the center of one access to the center of the next access on the same side of the road.

7.2 Existing Access

Table 6 provides detailed descriptive information for each approach shown on the approach inventory map (Figure 20), including short, medium- and long-term recommended actions associated with each. References to individual approaches correspond to the inventory of existing public and private approaches distinguished by identification (ID) numbers shown

on the approach inventory map. None of the existing approaches are permitted. A discussion of the approaches on each roadway in the interchange area follows.

OR 99

Seven driveways (labeled 12-15, and 21-23 on Figure 20) access OR 99. They provide access to residences and also provide farm access. The zoning is mostly EFU, with some Rural Residential. In addition, Willow Springs Road (labeled "A" on Figure 20) intersects OR 99 within the interchange.

Willow Springs Road

There are five access points between the southbound off-ramp terminus and the CORP Railroad. Two of these points provide access to residences (16 and 17), two provide access to farmland (18 and 20), and one provides access to Erickson Air Crane (19). The zoning is both EFU and GI.

Blackwell Road

Blackwell Road has seven driveways and one public road approach within 1,320 feet of the northbound ramp terminal. The four approaches on the east side of the roadway access parcels with residences (4 through 7). One of the approaches also provides access to a cell tower located on one of the lots (7). The public road approach (B) is a frontage road that meets the east side of Blackwell road approximately 200 feet to the north of the northbound off-ramp. The frontage road provides access to farm parcels (8, 9, and 11) and one access to a parcel with a residence (10). Two of the three approaches on the west side of Blackwell Road are driveways to homes. The other approach accesses roadside parking for Cascade Florist and Nursery (2). The zoning is EFU with some IC on the west side of Blackwell Road.

7.3 Access Management Strategy and Actions

The overall strategy of this access management plan is to protect traffic safety and operations within the interchange influence area. This will be accomplished using short, medium, and long-term actions in the area.

This section identifies actions to be implemented consistent with Division 51 goal of meeting or improving compliance with the access management spacing standards. The short-term actions are those that could be implemented in connection with the construction of Configuration 1, which is roughly equivalent to the current Interchange 35 Improvement Project. Medium- and long-term actions are recommended as land use changes and redevelopment occurs or in concurrence with the more comprehensive interchange improvements associated with Configuration 2 and other future roadway improvement projects.

ODOT requires approach permits for approaches to highways under its jurisdiction, but many driveways and public streets predate the permitting process or have come into

existence without permits. Furthermore, Division 51 provides ODOT with the authority to acquire access control on the interchange crossroad for a distance of 1320 feet from the ramp terminals. Access permits are not issued for approaches to an access-controlled highway or interchange crossroad. To maintain access across an access control line, a property owner must have a reservation of access, which provides access at a specific location.

7.3.1 Short-term Access Management Actions

Access Control within Interchange Influence Area
ODOT will acquire access control along OR 99/Blackwell Road for at least 1,320 feet to the north of the northbound ramp terminals and 1,320 feet to the south of the southbound ramp terminals, to be done in concurrence with Configuration 1 interchange improvements. Access control will also be acquired on Willow Springs Road to just beyond the location of the first residential approach on the south side of the street. These actions are supported by Policy 3C of the OHP.

Issue Reservations of Access
Since alternative access for some parcels is not practical at this time, reservations of access will be issued for existing approaches within the interchange influence area in conjunction with Configuration 1 interchange improvements. A reservation of access gives a property owner the common law right of access to the state highway (or interchange crossroad) only at specific locations. A reservation of access may contain use restrictions and does not guarantee approval of the approach or the location of the approach should the property redevelop in the future. Reservations of access will be recorded in the property deeds.

Relocation of Willow Springs Road and Frontage Road
Configuration 1 will relocate Willow Springs Road approximately 400 feet to the south, where it will become the west leg of the intersection consisting also of the southbound I-5 ramps. This relocation will not meet spacing standards, but will improve safety and efficiency of the interchange. North of the interchange, a frontage road intersects Blackwell Road from the east approximately 200 feet north of the northbound off-ramp. Configuration 1 will relocate this frontage road approximately 400 feet north of its current location. This will increase the spacing from the northbound ramps and will be an improvement over its current alignment, but will not meet the spacing standards. Major relocations of these roadways are not within the scope of Configuration 1 interchange improvements.

7.3.2 Medium-term and Long-term Access Actions

New Local Streets Network
This section presents options for new local street networks to the north and south of the interchange. New street alignments could offer opportunities to provide alternative access for many properties whose accesses currently violate the 1,320-foot spacing standards. Implementation of these actions will move in the direction of meeting Division 51 interchange area access spacing standards. Construction of a new local streets network represents a medium- to long-term action that may be partially or fully implemented as part of Configuration 2 interchange improvements.

Construction of an alternate roadway network should be a condition of approval for any development proposal that would add a significant number of vehicle trips to an existing approach within the interchange influence area. The safety and operations objectives of planned interchange improvements will be compromised by development that occurs without sufficient consideration of the project's access management goals.

North of the Interchange–New Local Street Network Options

Two alternatives have been presented for relocation of the frontage road connection, and are shown on Figure 21. (Note that Figure 21 illustrates conceptual roadway alignments only, and are subject to change.) Option A would relocate the frontage road to a future County road that would intersect Blackwell Road about 1,100 feet north of the interchange. This road would provide alternative access for those properties currently accessing the east side of Blackwell Road (approaches 4-7 on Figure 20). While this is a substantial improvement over the existing situation, it would still be less than the spacing.

Option B would relocate the frontage road connection further out to a future County road that would intersect Blackwell Road about 1,700 feet north of the interchange. As with Option A, this road would also provide alternative access for those properties currently accessing the east side of Blackwell Road (approaches 4-7 on Figure 20). This option would provide the 1,320-foot spacing specified in Division 51. The road located approximately 1,100 feet north of the interchange would be converted to a cul-de-sac.

Both options would include a service road to serve tax lots 2900, 3000, 3100, 3200, and 3300 on the west side of Blackwell Road (approaches 1-3 on Figure 20).

South of the Interchange–New Local Street Network Options

Configuration 1 will relocate Willow Springs Road approximately 400 feet south of its current location and will form the west leg of a signalized intersection consisting also of OR 99 and the I-5 southbound on- and off-ramps. This alignment clearly does not meet spacing standards. However, it is an improvement over existing conditions that will improve the safety and efficiency of the interchange. A major relocation of Willow Springs Road is not included under Configuration 1 interchange improvements due to cost, environmental impacts, and right-of-way impacts, specifically the potential displacement of area residents. Due to the additional southbound off-ramp from I-5, relocation of Willow Springs Road to meet spacing standards is an essential element of Configuration 2 interchange improvements.

Two alternatives for the relocation of Willow Springs Road have been proposed and are shown on Figure 22. (Note that Figure 22 illustrates conceptual roadway alignments only, and are subject to change.) Option A would create a cul-de-sac on Willow Springs Road at its current intersection location with OR 99. Access to this area would be provided via a new local road along the railroad right-of-way, intersecting OR 99 at Eric Avenue. This road would provide alternative access for those properties currently accessing OR 99 from the west (approaches 13-15, 21 on Figure 20). The intersection of Seven Oaks Road with OR 99 would be closed, and Seven Oaks traffic would be rerouted to the new intersection at Eric Avenue. This realignment would meet the 1,320-foot access spacing standard.

Option B also creates a cul-de-sac on Willow Springs Road at OR 99. A connector road would be constructed near an existing drainage way running parallel to OR 99, and would connect to Eric Avenue. Like Option A, this option would close the intersection of Seven Oaks Road with OR 99. It would also provide sufficient access spacing by providing alternative access to properties currently accessing OR 99.

Turn Restrictions

Left turns at driveway locations are a source of potential conflict and delay that can significantly degrade the safety and operations of a highway facility. If warranted by existing traffic conditions or anticipated traffic generated by a proposed development, prohibition of left-turn access to and from OR 99/Blackwell Road may be considered as a medium-term action. This can be accomplished through the installation of raised concrete traffic separators. This action should only be implemented on an interim basis prior to full Configuration 2 implementation of a new local street network that would provide alternate access to properties within the interchange influence area.

Table 6. Access Management Actions Summary

Approach Number	Tax Lot Number (T36S R2W)	Property Owner	Property Owner Address	Property Use	Address	Approach Width (Approximate)	Short-Term Action to be Implemented with Configuration 1	Medium-/Long-Term Action
1	Sec 28 TL 2900	DOUGLAS REAM MERRILL TRUST	940 LALOMA DR MEDFORD OR 97504	FIELD/FARM WITH RESIDENCE	6467 BLACKWELL RD	10 FEET	Issue reservation of access at this location restricted to residential & farming use.	Consolidation of accesses with adjacent properties. Right-in/right-out if needed.
2	Sec 28 TL 3000	ALLEN RAY PAYNE	6389 BLACKWELL RD CENTRAL POINT, OR 97502	CASCADE FLORIST & NURSERY	6389 BLACKWELL RD	60 FEET (WITH PARKING)	Issue reservation of acess at location of most southerly driveway restricted to current nursery use	Consolidation of accesses with adjacent properties. Right-in/right-out if needed.
3	Sec 28 TL 3200	TRUSTCORP LIMITED TRUSTEE	600 W GLENWOOD AVE TURLOCK, CA 95380	VACANT	6355 BLACKWELL RD	10 FEET (Approach borders on TL 3300 and also provides access o residence on TL 3100)	Purchase or modify existing access control so that reservation of access may be issued at existing driveway location that serves tax lots 3100, 3200 and 3300.	Consolidation of accesses with adjacent properties. Right-in/right-out if needed.
	Sec 28 TL 3300	TRUSTCORP LIMITED TRUSTEE	600 W GLENWOOD AVE TURLOCK, CA 95380	FIELD/FARM	BLACKWELL RD			
	Sec 28 TL 3100	TOVIETA BROWNING	6353 BLACKWELL RD CENTRAL POINT, OR 97502	FIELD/FARM WITH RESIDENCE	BLACKWELL RD			
4	Sec 28 TL 900	LINCOLN TRUST COMPANY/ROCK'N'READY MIX	PO BOX 1460 MEDFORD, OR 97501	FIELD/FARM WITH RESIDENCE	6452 BLACKWELL RD	10 FEET	Issue reservation of access at this location restricted to residential & farming use.	Relocate approach to give property access to local road.
5	Sec 28 TL 800	LINCOLN TRUST COMPANY/ROCK'N'READY MIX	PO BOX 1460 MEDFORD, OR 97501	FIELD/FARM WITH RESIDENCE	6422 BLACKWELL RD	10 FEET	Consolidate approaches 5 and 6, create single approach. Issue reservation of access restricted to residential and farming use.	Relocate approach to give property access to local road.

Approach Number	Tax Lot Number (T36S R2W)	Property Owner	Property Owner Address	Property Use	Address	Approach Width (Approximate)	Short-Term Action to be Implemented with Configuration 1	Medium-/Long-Term Action
6	Sec 28 TL 800	LINCOLN TRUST COMPANY/ROCK'N'READY MIX	PO BOX 1460 MEDFORD, OR 97501	FIELD/FARM WITH RESIDENCE	6422 BLACKWELL RD	10 FEET		
7	Sec 28 TL 700	FANG YEN HONG/LIN CHUN-MEI	133 TIFFANY WAY GRANTS PASS, OR 97526	FIELD/FARM WITH RESIDENCE & CELL TOWER	6366 BLACKWELL RD	10 FEET	Purchase access control with no reservation of access. Access will be via frontage road.	No action
8	Sec 28 TL 600	FANG YEN HONG/LIN CHUN-MEI	133 TIFFANY WAY GRANTS PASS, OR 97526	FIELD/FARM	BLACKWELL RD	10 FEET	No action. Approach accesses frontage road.	No action
9	Sec 28 TL 600	FANG YEN HONG/LIN CHUN-MEI	133 TIFFANY WAY GRANTS PASS, OR 97526	FIELD/FARM	BLACKWELL RD	15 FEET	No action. Approach accesses frontage road.	No action
10	Sec 28 TL 300	RONALD/BETTY VON DER HELLEN	6000 BLACKWELL RD CENTRAL POINT OR 97502	RESIDENCE	6000 BLACKWELL RD	30 FEET	No action. Approach accesses frontage road.	No action
11	Sec 28 TL 400	LOUISE/RONALD L VON DER HELLEN	6000 BLACKWELL RD CENTRAL POINT OR 97502	FIELD/FARM	6000 BLACKWELL RD	15 FEET	No action. Approach accesses frontage road.	No action
12	Sec 28 TL 401	DWIGHT BUSS	652 FOOTS CREEK RD GOLD HILL, OR 97525	FIELD/FARM	BLACKWELL RD	10 FEET (ON ROGUE VALLEY HWY)	Total buyout of property to acquire r/w for interchange improvements.	No action
13	Sec 33 TL 700	THOMAS CLARENCE WEST	5825 ROGUE VALLEY HWY CENTRAL POINT, OR 97502	FIELD/FARM WITH RESIDENCE	5825 ROGUE VALLEY HWY	10 FEET	Issue reservation of access at this location restricted to residential & farming use.	Relocate approach to give property access to local road.

Approach Number	Tax Lot Number (T36S R2W)	Property Owner	Property Owner Address	Property Use	Address	Approach Width (Approximate)	Short-Term Action to be Implemented with Configuration 1	Medium-/Long-Term Action
14	Sec 33 TL 700	THOMAS CLARENCE WEST	5825 ROGUE VALLEY HWY CENTRAL POINT, OR 97502	FIELD/FARM WITH RESIDENCE	5825 ROGUE VALLEY HWY	20 FEET	Close approach. Access to be provided by southerly driveway on property.	No action
15	Sec 33 TL 500	WILLIAM W/BETTY J MARTIN	6191 VENTURA LN CENTRAL POINT OR 97502	FIELD/FARM WITH RESIDENCE	5863 ROGUE VALLEY HWY	15 FEET	Existing reservation of access. Verify that driveway location is consistent with legal description of reservation.	Relocate approach to give property access to local road.
16	Sec 33 TL 400	MARVIN L NICOLETTO	2901 WILLOW SPRINGS RD CENTRAL POINT OR 97502	RESIDENCE	2901 WILLOW SPRINGS RD	10 FEET	Purchase access control along Willow Springs Road. Issue reservation of access at point on property furthest from intersection.	Maintain or modify approach as needed to access reconfigured Willow Springs Road cul-de-sac.
17	Sec 28 TL 3600	VINCENT P/ FLO D WAYNE	2908 WILLOW SPRINGS RD CENTRAL POINT, OR 97502	FIELD/FARM WITH RESIDENCE	2908 WILLOW SPRINGS RD	10 FEET	No action. Approach accesses Willow Springs Road	Will continue to have access to Willow Springs Road cul-de-sac.
18	Sec 28 TL 3600	VINCENT P/ FLO D WAYNE	2908 WILLOW SPRINGS RD CENTRAL POINT, OR 97502	FIELD/FARM WITH RESIDENCE	2908 WILLOW SPRINGS RD	10 FEET	No action. Approach accesses Willow Springs Road	Will continue to have access to Willow Springs Road cul-de-sac.
19	Sec 28 TL 3500	JIM/MARLYS WILLIAMS	3100 WILLOW SPRINGS RD CENTRAL POINT, OR 97502	ERICKSON AIR CRANE: INDUSTRIAL EQUIPMENT	3100 WILLOW SPRINGS RD	25 FEET	No action. Approach accesses Willow Springs Road	Will continue to have access to Willow Springs Road cul-de-sac..
20	Sec 33 TL 600	RON G/JUDY LYNN MARTINSON	3249 WILLOW SPRINGS RD CENTRAL POINT, OR 97502	FIELD/FARM	WILLOW SPRINGS RD	15 FEET	No action. Approach accesses Willow Springs Road	Will continue to have access to Willow Springs Road cul-de-sac.

Approach Number	Tax Lot Number (T36S R2W)	Property Owner	Property Owner Address	Property Use	Address	Approach Width (Approximate)	Short-Term Action to be Implemented with Configuration 1	Medium-/Long-Term Action
21	Sec 33 TL 800	PAUL ZIESCHE	5709 ROGUE VALLEY HWY, CENTRAL POINT OR 97502	RESIDENTIAL/ FARM	OR 99	10 FEET	Issue reservation of access at this location restricted to residential & farming use.	Relocate approach to give property access to local road.
22	Sec 33A TL 200	JOE/LINDA RUTIGLIANO	PO BOX 534, GOLD HILL OR 97525	FARM USE	OR 99	15 FEET	Purchase or modify existing access control. Access to be via Drake Avenue.	No action
23	33A TL 1300 & 1400	RAYMOND/ BARBARA DAVIDSON	2798 ERIC AVENUE CENTRAL POINT, OR 97502	FARM USE	OR 99	10 FEET	Purchase or modify existing access control. Access to be via Eric and Drake Avenues.	No action
A	N/A	Jackson County		Public Street (Willow Springs Road)	N/A	25 FEET	Relocate approach to new signalized intersection at OR 99 and I-5 SB ramp terminals.	Create cul-de-sac that severs direct connection to OR 99. Modify local road network, reroute vehicles to new OR 99 access further south of interchange.
B	N/A	ODOT		Frontage Road	N/A		Relocate approach approx. 400 feet north of current location.	Modify local road network, reroute vehicles to new OR 99 access further north of interchange.

Source: Jackson County Tax Assessor, 2004

8 NATURAL RESOURCES CONSTRAINTS

The Existing Soils, Agriculture, and Natural Resources Narrative summarizes information about agriculture and natural resources in the planning area (see Appendix F). The most prevalent soil series in the planning area are Prime Farmland. Soils within the highway right-of-way are highly disturbed, consist almost entirely of fill material, and do not resemble the mapped soil series. The Environmental Baseline Report and its supplement provide information about natural resources in the interchange area. The research and fieldwork conducted for the reports found neither occurrences nor habitat for federally or state listed wildlife or botanical species, no 4(f) features, no wetlands that meet soils or vegetation criteria, and no established 100-year floodplains or evidence of flooding.

Bear, Willow, and Dean creeks flow through the planning area. The overpass bridge spans Dean Creek, which runs through a deep, 15-foot-wide concrete-lined gravel-bottomed channel and four underground culverts in the planning area. Dean Creek is not known to support runs of anadromous fish, but the other creeks do, including listed species. There is one resource, a bungalow on the Cascade Florist and Nursery property at 6389 Blackwell Road that is potentially eligible for National Register of Historic Places; ODOT has not completed a Determination of Eligibility. Residences in the planning area are potential sensitive noise receptors. Hazardous waste at the Erickson Air Crane site may require sample collection and laboratory analysis if construction requires removal of treated utility poles, transformers and treated guardrail posts because of volatile organic compound contamination of groundwater.

Configuration 1 and Configuration 2 improvements to the interchange will consider floodplain protection needs, proper erosion control and scour protection, and habitat protection needs and constraints, and federal and state permit requirements during the project design and development stage.

9 INTERCHANGE 35 IAMP

This Interchange Area Study may lead to an IAMP if a change in land use or a change in the roadway network occur that has significant impacts to Interchange 35. A future IAMP must, at a minimum, address land use, existing and future traffic analysis, natural resources constraints and access management. In addition, a discussion outlining implementation of the IAMP would need to be included. A discussion regarding implementation of a future Interchange 35 IAMP is discussed below.

The IAMP for the I-5 Interchange 35 must be jointly adopted by the OTC and Jackson County.

Jackson County would need to amend the Jackson County TSP to include the I-5 Interchange 35 IAMP. Because the TSP is an element of the County's comprehensive plan, adopting the IAMP would be considered a legislative action, subject to the procedures in the Jackson County Land Development Ordinance (LDO), Section 2.7.7. The adoption of the IAMP constitutes a Major Text Amendment, as it adopts new policy and implementation measures for the interchange area. The approval criteria for a legislative Major Text Amendment can be found in Section 3.7.3 of the LDO.

9.1 Proposed Amendments

The following summarizes the major Jackson County TSP amendments that would need to occur to support adoption of the I-5 Interchange 35 IAMP.

- A list of planned interchange improvements necessary to implement the preferred alternative for Configuration 2 for Interchange 35 must be included as part of the Roadway Improvement Projects list, Table 5-4 in the Jackson County TSP.

- The Short-term Access Management Strategies must be adopted by reference into the County's TSP.

- The Willow Springs Road realignment, and the new local street network options that are necessary to implement Configuration 2 of the interchange improvements shall be adopted by reference into the County's TSP.

9.2 Other Related Actions

9.2.1 Protection of Farmland

The existing state statutes and administrative rules, combined with the Oregon Statewide Planning Goals and implementing regulations, have been very effective in protecting resource lands and it is expected that they will provide long-term protection for the agricultural lands and land uses surrounding Interchange 35. As documented in the Existing Soils, Agriculture, and Natural Resources Narrative (Appendix F) there is some non-high value farmland in the analysis area. While more intense uses technically could be allowed under a Type 3 or Type 4 permit process, realistically there is not sufficient land designated non-high value to support these

uses.[14] The conclusion of the IAMP would be that maintaining current and allowed land use designations within the analysis area sufficiently protects the function of the interchange.

9.2.2 Potential Future Urbanization

While the land adjacent to Interchange 35 currently is in an unincorporated part of Jackson County, the City of Central Point has adopted a resolution identifying portions of the analysis area (which will be called an "IAMP Planning Area" in the context of an IAMP) as a possible area of UGB expansion. The interchange also lies within an Area of Mutual Planning Concern where both the City of Central Point and Jackson County have an interest in that area's types and levels of development. Because of the important access Interchange 35 provides to I-5 for residents, as well as the City's interest in future urbanization opportunities, the City of Central Point should be an active participant in the development of an IAMP for Interchange 35.

While Jackson County has land use authority for land within the IAMP Planning Area and the City of Central Point is not obligated to adopt an IAMP, the following policies are recommended to protect the function of the interchange in the event that the UGB is expanded into the area:

- *Local jurisdictions shall continue to coordinate with ODOT and state agencies, through the plan amendment and development review process, to keep existing land use protections in place. ODOT will also monitor and comment on any future actions that would amend the urban growth boundary in the vicinity of Interchange 35.*

- *If the Regional Problem Solving process recommends expanding the UGB into the IAMP Planning Area, or if the City of Central Point independently proposes to expand its UGB closer to Interchange 35, then the City will amend its TSP to incorporate the Interchange 35 IAMP policies and implementation measures. Prior to, or concurrently with, rezoning of land within the IAMP Planning Area to urban uses, the City of Central Point and ODOT shall jointly prepare amendments to the IAMP to identify any additional improvements to the Interchange 35 and an accompanying funding plan to provide those improvements. The IAMP and funding plan shall be submitted to the OTC for approval.*

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[14] In total, only 14.5% of the total farmland acreage can be considered non-high value farmland within the Interchange 35 Planning Area; of the largest area of contiguous land with this designation is… Type 3 uses include commercial activities in conjunction with farm use, mining operations, and recreation facilities and small destination resorts on non-high value farmland. Type 4 uses include large destination resorts, Oregon Department of Environmental Quality-permitted solid waste and composting facilities, and large outdoor gatherings. In EFU lands, Type 3 use applications must address two additional criteria. The applicant must demonstrate that the use will not force a significant change in accepted farm or forest practices on surrounding lands devoted to farm or forest use, and it will not significantly increase the cost of accepted farm or forest practices on lands devoted to farm or forest use. Type 3 actions require a notice of decision and opportunity for a hearing.

A Type 4 application is subject to review and approval by the Planning Commission and Board of Commissioners.

- *If future County-initiated changes to the land use designations or uses allowed in the IAMP Planning Area result in the need for additional capacity at the interchange, Jackson County and ODOT shall jointly prepare a funding plan for the provision of any improvements to Interchange 35. The funding plan shall be submitted to the OTC for approval.*

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