



DRAFT MEMORANDUM #8

DATE: December 14, 2015

TO: Albany Area Metropolitan Planning Organization RTP Project Management Team

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**SUBJECT: Albany Area Metropolitan Planning Organization Regional Transportation Plan
DRAFT Technical Memo #8: Future Transportation Conditions and Needs**

P14180-007

The purpose of this memorandum is to summarize future transportation conditions and needs for the 2040 planning horizon. The needs summary build on the existing 2015 system condition and 2040 forecasting methodology, which are summarized in prior documentation¹. The conditions and needs summarized in this document are based on the inclusion of “committed” transportation improvement projects only and do not account for other transportation projects that have been planned for local agencies but are not yet funded. The future conditions and needs are organized into the following areas:

- Street system operational needs (regional corridors and study intersections)
- Pedestrian needs (RTP gap analysis and needs from prior plans)
- Bicycle needs (RTP gap analysis and needs from prior plans)
- Safety needs (RTP analysis)
- Other modal needs identified in prior planning efforts (rail, ITS, safety, etc.)

The next stage of the RTP planning process will identify transportation solution packages to address the needs summarized in this document.

¹ Memorandum: Albany Area Metropolitan Planning Organization Regional Transportation Plan DRAFT Technical Memorandum #4: Existing Conditions, prepared by DKS Associates, August 10, 2015; Memorandum: Albany Area Metropolitan Planning Organization Regional Transportation Plan DRAFT Technical Memorandum #7: Future Forecasting, prepared by DKS Associates, November 6, 2015

Street System Needs

The regional street system was analyzed to identify future safety needs and 2040 mobility needs for regional corridors and study intersections.

Regional Corridor Capacity Needs

The Corvallis Albany Lebanon Model (CALM) travel demand model was used to assess the condition of future corridors in the region. One measure for system deficiencies is link or corridor level volume-to-capacity (v/c) ratios. This measure considers the general ability for the facility capacity to address traffic flow and does not directly account for the bottlenecks that can occur at intersections (included in following section). Figure 1 illustrates the locations where model volume outputs are equal to or exceed the coded link capacity. Links colored red are over the model capacity, while those that are yellow are nearing capacity, and links colored green are moderately congested. All other links are relatively uncongested under 2040 conditions.

The model does not incorporate added capacity due to the presence of center turn lanes. For example, a two lane street has the same coded capacity as a three lane street. Several arterials and collectors with the AAMPO area such as Queen Avenue, Geary Street, and Waverly Drive have an existing center turn lane. A current road project on North Albany Road includes adding center turn lanes and widening the existing cross section. The raw model volume-to-capacity ratios on Queen Avenue, Geary Street, Waverly Drive, and North Albany Road indicate near or over capacity conditions at several locations. As the capacity benefits of center turn lanes are not included in the travel demand model, these locations were not included in the corridor deficiency lists in Table 1, which lists the regional corridors nearing or exceeding capacity by the year 2040.

Table 1: Summary of 2040 Committed Network Corridor Capacity Deficiencies

Road	Direction of Travel	From	To	Deficiency
East-West Regional Corridors				
US 20	Eastbound	MPO Boundary	Blossom Ln	Over Capacity
		North Albany Rd	Springhill Rd	Nearing Capacity
		Springhill Rd	2nd Ave	Over Capacity
		Waverly Dr	Center St	Nearing Capacity
	Southbound	Springhill Rd	2 nd Ave	Over Capacity
		2 nd Ave	4 th Ave	Nearing Capacity
		5 th Ave	7 th Ave	Over Capacity
		7 th Ave	OR 99E	Nearing Capacity
		Waverly Dr	Center St	Nearing Capacity
	Westbound	2 nd Ave	Springhill Rd	Over Capacity
	Northbound	OR 99E Westbound Off-Ramp (to Lyon St)	5 th Ave	Nearing Capacity

Road	Direction of Travel	From	To	Deficiency
		3 rd Ave	2 nd Ave	Nearing Capacity
		2 nd Ave	Springhill Rd	Over Capacity
US 20/ OR 99E	Eastbound	OR 99E Eastbound On-Ramp	9 th Ave	Over Capacity
		9 th Ave	Madison St	Nearing Capacity
	Westbound	Madison St	OR 99E Westbound Off-Ramp (to Lyon St)	Over Capacity
Gibson Hill Rd	Westbound	North Albany Rd	Broadway St	Over Capacity
		Broadway St	Penny Ln	Nearing Capacity
Salem Rd	Eastbound	Pine St	Albany Ave	Nearing Capacity
OR 164	Eastbound	I-5 Northbound Off-Ramps	Main St (Jefferson)	Over Capacity
North-South Regional Corridors				
OR 99E	Northbound	Waverly Dr	Killdeer Ave	Nearing Capacity
		Airport Rd	Northbound I-5 On-Ramp	Over Capacity
	Southbound	Killdeer Ave	Waverly Dr	Nearing Capacity
		Washington St	Queen Ave	Nearing Capacity
I-5 Ramps	Northbound	I-5	OR 99E	Over Capacity
	Southbound	OR 99E	I-5	Nearing Capacity

Source: CALM Travel Demand Model

The congestion and over capacity future conditions of US 20 between Corvallis and downtown Albany have the potential to impact the alternate regional route of OR 34. The travel demand model indicates that traffic (approximately 100 p.m. peak hour vehicles in 2040) diverts to OR 34 due to the level of congestion of US 20. The US 20 Bridge across the Willamette River indicates potential future bottleneck issues.

The over-capacity conditions on the OR 99E/US 20 couplet could cause additional burden to the local system, with regional traffic re-routing onto parallel local streets to avoid mainline delays. Approximately 350 vehicles desiring to travel east-west along US 20 and OR 99E are projected to change their route in order to avoid congestion in 2040 during the p.m. peak hour. Approximately 250 vehicles traveling along the US 20/OR 99E couplet through Albany are projected to detour to SE Salem Avenue.

OR 164 is a key east-west regional route connecting Jefferson to the rest of the AAMPO area. With limited alternate routing opportunities, the modeled over-capacity conditions on this arterial could lead to increases in travel time between Jefferson and Millersburg.

The over-capacity issues at the I-5/OR 99E interchange are more intersection than corridor related and are addressed in the following section.

Congestion along additional regional routes also has the potential to divert traffic flow. All values provided are relative to the 2040 p.m. peak hour:

- Queen Avenue also provides east-west connectivity within Albany. When Queen Avenue becomes congested it is likely that vehicles shift onto adjacent local roads.
- Scenic Drive to US 20 is a primary connection for travelers to/from Albany north of the Willamette River. Approximately 100 vehicles deviate from Scenic Drive and US 20 to Gibson Hill Road and North Albany Road to minimize delay.
- Approximately 100 vehicles desiring to travel north-south along I-5 alter their route onto lower class roads such as OR 99E and Old Salem Road.
- Approximately 100 vehicles from Waverly Drive shift onto nearby roads like Geary Street or Center Street.

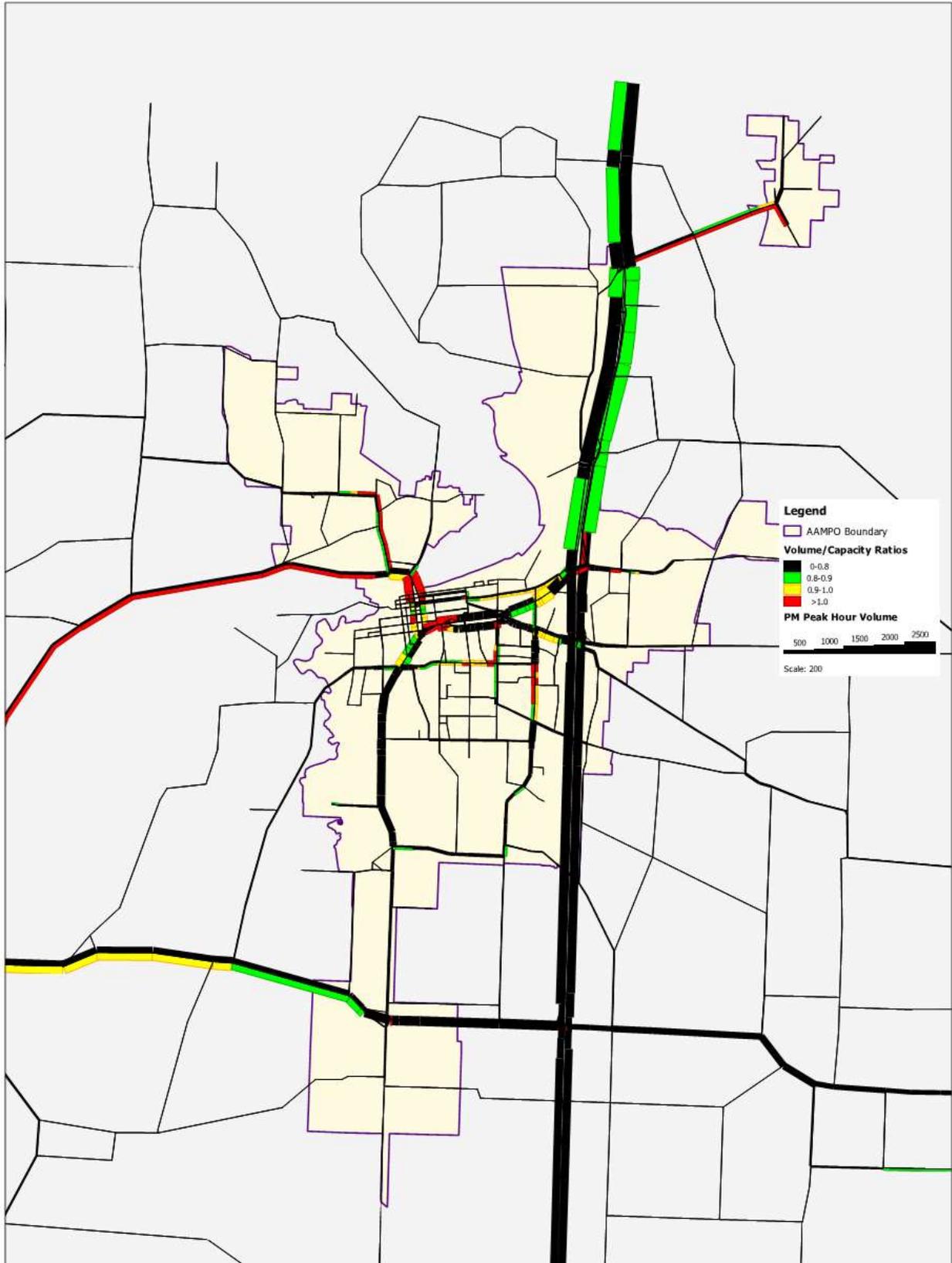


Figure 1: 2040 “Committed Network P.M. Peak Hour Congestion

Regional Intersection Mobility

Intersection operations were analyzed based on the 2000 Highway Capacity Manual² for signalized intersections and 2010 Highway Capacity Manual³ for unsignalized intersections. Level of service and v/c ratios are two commonly used performance measures that provide a gauge of intersection operations. Level of service is a “report card” rating (A through F) based on the average delay experienced by vehicles at the intersection. LOS A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hour travel demand. LOS D and E are progressively worse operating conditions. LOS F represents conditions where average vehicle delay has become excessive and demand has exceeded capacity. This condition is typically evident in long queues and delays.

A v/c ratio is a decimal representation (typically between 0.0 and 1.0) of the proportion of capacity that is being used (i.e., saturation) at a turn movement, approach, or intersection. A lower ratio indicates smooth operations and minimal delays. As the ratio approaches 1.0, congestion increases and performance is reduced. If the ratio is greater than 1.0, the turn movement, approach leg, or intersection is oversaturated and usually results in excessive queues and long delays.

Table 2 summarizes the 2040 weekday p.m. peak hour and 30th highest hour peak seasonal intersection operational levels at the study intersections. Of the 28 study intersections, there are two unsignalized intersections, Century Drive & I-5 NB Off Ramp/Knox Butte Road and Scenic Drive/Albany-Corvallis Highway (US 20), that do not currently meet Oregon Highway Plan mobility targets for the year 2015. An additional five locations (seven total) would not meet their respective mobility targets during the 2040 average weekday p.m. peak hour condition, and there would be an additional four locations (eleven total) that would not meet their respective mobility targets during the 2040 seasonal peak. These needs do not account for the planned improvements that have been identified (but not currently funded). These capacity needs are located at the following areas in the MPO:

- North end (Jefferson and Millersburg)
 - OR 164 / North Avenue
 - OR 164 / I-5 Northbound ramps
 - OR 164 / Main Street
- East Albany
 - Knox Butte Road / I-5 Northbound off-ramp
 - Knox Butte Road / Clover Ridge Road
- North Albany
 - US 20 / Scenic Drive

² 2000 *Highway Capacity Manual*, Transportation Research Board, Washington DC, 2000.

³ 2010 *Highway Capacity Manual*, Transportation Research Board, Washington DC, 2000.

- US 20 / Springhill Drive
- Central Albany
 - OR 99E / Airport Road
 - US 20 / Waverly Drive
 - OR 99E / Queen Avenue
 - US 20 (Lyons Street) / 1st Avenue

Table 2: Existing Weekday PM Peak Hour and 30HV Peak Seasonal Intersection Operations Summary

Intersection	Average Weekday		30HV		Jurisdiction	Mobility Target
	Level of Service	Volume/ Capacity (major/minor approach)	Level of Service	Volume/ Capacity (major/minor approach)		
Unsignalized Intersections						
Jefferson Hwy (OR 164)/North Avenue	F	0.05/0.87	F	0.05/>1.0	ODOT	0.95
Jefferson Hwy (OR 164)/Scrael Hill Road	F	0.13/0.66	F	0.14/0.74	ODOT	0.95
Jefferson Hwy (OR 164)/I-5 NB Ramps	F	0.07/>1.0	F	0.08/>1.0	ODOT	0.85
Jefferson Hwy (OR 164)/I-5 SB Ramps	A	0.02/0.13	A	0.02/0.14	ODOT	0.85
Century Drive/I-5 NB Ramps	B	0.17/0.21	C	0.19/0.28	ODOT	0.85
Old Salem Road/I-5 SB Ramps	E	0.20/0.39	F	0.22/0.45	ODOT	0.85
Knox Butte Road/Century Drive & I-5 NB Off Ramp	F	0.19/>1.0	F	0.23/>1.0	ODOT	0.85
Knox Butte Road/Clover Ridge Road	F	0.34/>1.0	F	0.37/>1.0	Albany	0.85
Knox Butte Road/Scrael Hill Road	B	0.04/0.23	B	0.04/0.25	Linn County	D
Santiam Highway (US 20)/Scrael Hill Road	B	0.12/0.15	C	0.14/0.22	ODOT	0.95
Seven Mile Lane/Three Lakes Road	B	0.03/0.12	B	0.03/0.12	Linn County	D
Albany-Corvallis Highway (US 20)/Scenic Drive	F	0.17/>1.0	F	0.24/>1.0	ODOT	0.95
Scenic Drive/Gibson Hill Road	C	0.15/0.09	C	0.16/0.10	Albany	0.85
Signalized Intersections						
Jefferson Hwy (OR 164)/Main Street	D	0.93	E	1.0	ODOT	0.95
Pacific Highway (OR 99E)/Albany Avenue & Airport Road	E	>1.0	F	>1.0	ODOT	0.95
Pacific Highway (OR 99E)/53rd Avenue ^C	A	0.56	A	0.60	ODOT	0.95
Waverly Drive/34th Avenue ^C	B	0.60	B	0.62	Albany	D

Intersection	Average Weekday		30HV		Jurisdiction	Mobility Target
	Level of Service	Volume/ Capacity (major/minor approach)	Level of Service	Volume/ Capacity (major/minor approach)		
Fescue Street/Santiam Highway (US 20) ^C	C	0.76	C	0.85	ODOT	0.95
Airport Road/Santiam Highway (US 20) ^C	B	0.67	D	0.78	ODOT	0.95
Waverly Drive/Santiam Highway (US 20) ^C	F	>1.0	F	>1.0	ODOT	0.95
Queen Avenue/ Pacific Highway (OR 99E) ^C	F	>1.0	F	>1.0	ODOT	0.95
Waverly Drive/ Pacific Highway (OR 99E) ^C	D	0.84	D	0.90	ODOT	0.95
Ellsworth Street (US 20)/1st Avenue ^C	B	0.78	C	0.91	ODOT	1.0
Ellsworth Street (US 20)/2nd Avenue ^C	B	0.79	D	0.92	ODOT	1.0
Lyons Street (US 20)/1st Avenue ^C	F	0.96	F	>1.0	ODOT	1.0
Lyons Street (US 20)/2nd Avenue ^C	C	0.79	C	0.89	ODOT	1.0
Springhill Drive/ Albany-Corvallis Highway (US 20) ^C	C	0.87	C	0.98	ODOT	0.95
North Albany Road/ Albany-Corvallis Highway (US 20) ^C	E	0.75	F	0.83	ODOT	0.95

Notes: **Bolded Red and Shaded** indicates a v/c ratio greater than the standard.
^A Volume-to-capacity ratio for unsignalized intersections reported for the worst stop controlled movement for the major and minor approach.
^C Albany TSP study intersection reported in local plan for 2030 conditions. The local TSP data collection was used to develop future 2040 conditions.

Truck Freight Mobility

Freight routes are designated to facilitate efficient and reliable truck movements. There are two designated freight routes within the AAMPO area, OR 34 and I-5. Both I-5 and OR 34 are designated as federal truck routes and state freight routes throughout the entire AAMPO area. It is important to note that OR 99E and US 20 also play key role in moving freight throughout the area to/from the designated freight routes to local destinations. I-5, US 20, and OR 99E are “Reduction Review Routes” as identified in ORS 366.215. Any potential improvement project on these facilities is subject to the review requirements described in OAR 731-012 to ensure there is no reduction in carrying capacity for freight.

Maintaining future mobility along freight routes is important for ensuring the timely movement of goods. As congestion increases along freight routes, goods movement slows and becomes less efficient. In addition, routes that approach or exceed capacity become more sensitive to disruptions in traffic flow and can lead to unreliable travel time from day to day. These impacts to average travel time and travel time reliability can affect the logistics chain and may ultimately alter the manufacturing schedules and efficiency. As noted in Table 1 and Figure 1, both OR 99E and US 20 are projected to have capacity needs without additional improvements in the MPO. As shown in Figure 1, OR 34 also is projected to have future congestion. While outside the MPO boundary, this route still impacts the movement of freight into and out of the MPO. Several of the intersections listed in Table 2 would also not meet mobility targets and would pose as system bottlenecks along the freight routes.

Regional Safety Needs

Intersection crash rates along with two ODOT safety studies were used to identify potential motor vehicle safety issues within the AAMPO area.

Crash data for the most recent five years available (2009-2013) on all roadways within the AAMPO area were obtained from ODOT and used to develop intersection crash rates. The intersection crash rate analysis identified four locations, with higher than normal crash rates.

- Century Drive and I-5 NB Ramps
- Scrael Hill Road and Knox Butte Road
- Waverly Drive and US 20
- Queen Avenue and OR 99E

The All Roads Transportation Safety (ARTS) Program study, focused on crashes involving fatal and serious injuries. The ARTS Program identified the following hot-spot crash locations

- Waverly Drive and US 20
- Geary Street and OR 99E
- Geary Street and US 20
- Clay Street and US 20
- Albany Avenue/Airport Road and OR 99E
- Geary Street and Queen Avenue

Lastly, ODOT maintains a Safety Priority Index System (SPIS) to identify potential safety problems on state highways. The SPIS network screening process aims to identify sites with higher crash histories that have promise as sites for potential safety improvements. There were two state corridors, OR 99E and US 20, that rank among the top 10% SPIS sites. The locations along each corridor within the AAMPO area are listed below.

- US 20 - through downtown Albany
- OR 99E/US 20 - between Queen Avenue and Waverly Drive
- OR 99E - at 34th Avenue
- OR 99E - near Linn-Benton Community College

Pedestrian Needs

Pedestrian deficiencies were identified on the regionally significant corridors (arterials and collectors)⁴ based on existing pedestrian facilities. Pedestrian deficiencies include areas with either gaps within an existing sidewalk, lack of a dedicated pedestrian facility or pedestrian facilities with major safety concerns. There are considerable pedestrian facility gaps in the outlying areas (nearly 55 percent of the regionally significant roadways) including the outer areas of Albany and the surrounding cities, Millersburg, Jefferson and Tangent. Incomplete sidewalk coverage includes a lack of dedicated pedestrian facilities as well as sidewalks on only one side of a street.

Facility Gaps or Poor Conditions

Pedestrian connectivity from the centralized MPO area (or Albany) to the outlying areas, south to Tangent, west to North Albany and north to Millersburg and Jefferson is limited. Figure 2 shows locations with pedestrian rating “poor” (lack sidewalks). In addition, there are considerable pedestrian facility gaps within these outlying areas resulting in poor pedestrian connectivity in each individual area. The outlying areas are also expected to have future employment and household growth. Complete sidewalk coverage will increase pedestrian mobility within and between the outlying areas as well as support future growth. For example, Jefferson is projected to have significant household growth (doubling the existing households) by 2040 and pedestrian facilities will need to be developed or upgraded to serve the additional population. Similarly, Millersburg, North Albany and Tangent all have significant projected household growth (roughly 40-45 percent relative to existing households). Millersburg and North Albany also have significant projected employment growth, nearly doubling the existing employment. Finally, the trip activity at Linn-Benton Community College is expected to grow by about 30 percent.⁵

Pedestrian Safety

The pedestrian connectivity within the centralized MPO area (or Albany) is generally adequate, however there are potential safety concerns. Two locations, the first along the US 20 couplet (Ellsworth Street and Lyons Street) through downtown Albany and the second area surrounding Heritage Plaza Shopping Center, have experienced a high number of vehicle-pedestrian crashes.

⁴ Additional gaps or deficiencies on the local system were not identified.

⁵ *Memorandum: CALM Input Data Development – Task 3.1 Process and Technical Procedures*, prepared by DKS Associates, June 19, 2014.

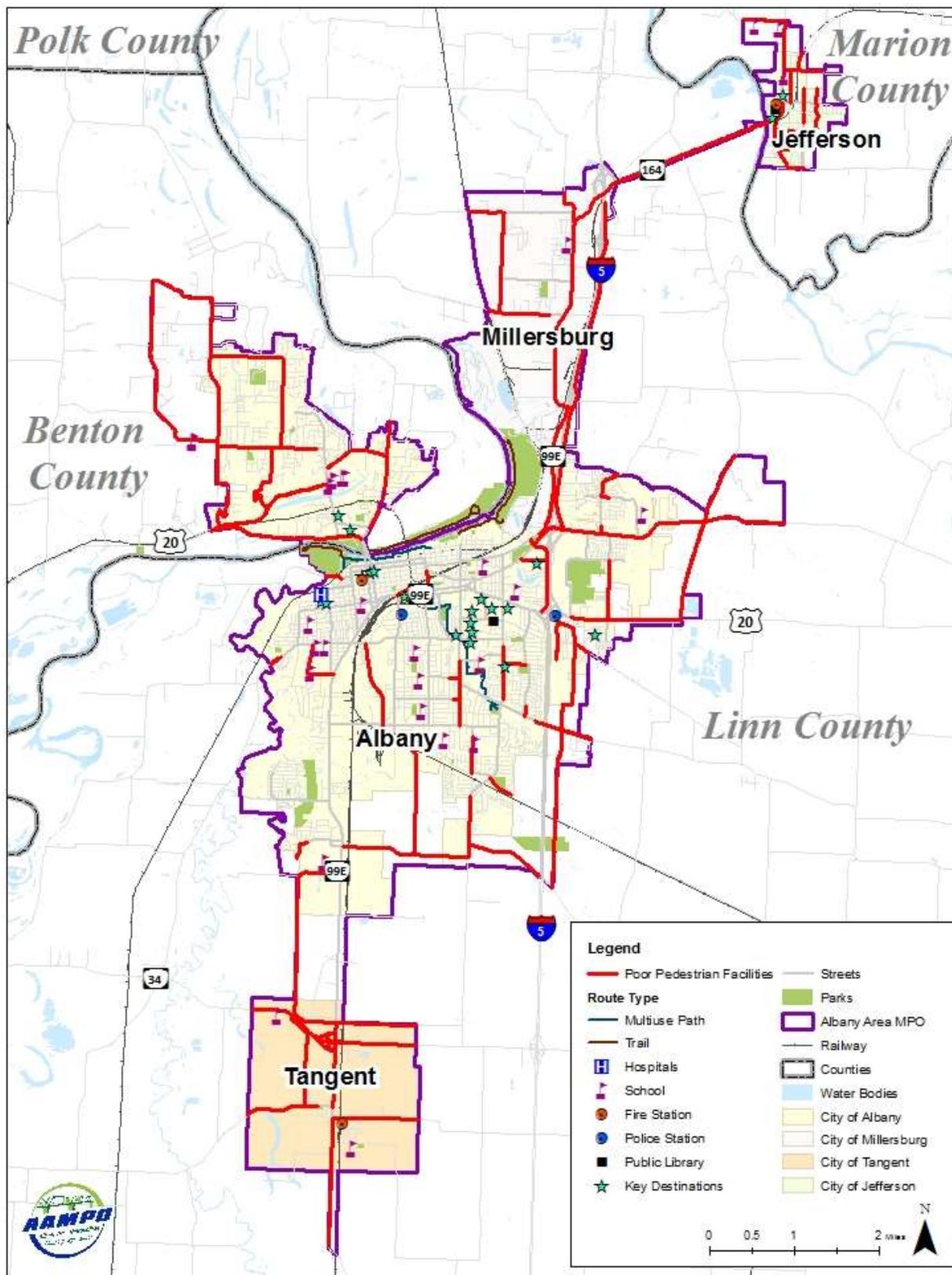


Figure 2: “Poor” Pedestrian Locations (Sidewalk Gaps) on Major Roadways

ADA Requirements

A high-level review of the ADA (Americans with Disabilities Act) design standards within the AAMPO area revealed that the ADA compliance is incomplete. Generally, the recently rehabilitated or constructed roadways, such as North Albany Road or Oak Street in Albany⁶, Oregon, have been designed to meet ADA requirements while older areas have incomplete ADA design features. For example, there are inconsistent curb ramps at the intersection of 9th Avenue/Calapooia Street in Albany, Oregon⁶⁴. A separate study is necessary to fully evaluate ADA compliance within the AAMPO area.

Pedestrian Needs from Prior Plans

Additional needs with regional significance that have been identified in past planning efforts include:

- Most pedestrian generators have adequate pedestrian facilities, however several areas in North Albany adjacent to schools and parks lacked sidewalk connections. (Albany TSP)
- Albany needs approximately 7.5 miles of trails as of the 2006 plan date and will need over 9.5 miles in the year 2015. (Albany Park and Recreation Master Plan)
- Development of a regional trails plan (Linn County Park and Recreation Plan)
- Enhancement of access to the Willamette River. Hyak Park sits just outside of AAMPO along US 20. (Benton County Natural Areas and Parks Plan)
- Support for capitalizing on the large number of low-traffic roadways, existing trails, and railroad corridors to connect communities, natural areas, parks and other destinations (Benton County Natural Areas and Parks Plan)
- Collaborative management for a more organized and connected system of parks and trails (Benton County Natural Areas and Parks Plan)
- Conducting a gap analysis with partner agencies to identify priority multimodal path linkages that will have minimal impact on private property (Benton County Natural Areas and Parks Plan)
- Developing recreation facilities that support popular activities – boating, walking, picnicking, fishing, camping, and swimming (Marion County Parks Master Plan)

⁶ Memorandum: Albany Area Metropolitan Planning Organization Regional Transportation Plan DRAFT Technical Memorandum #4: Existing Conditions, prepared by DKS Associates, August 10, 2015

Bicycle Needs

Bicycle deficiencies were identified on the regionally significant corridors (arterials and collectors)⁷ based on existing bicycle facilities. Bicycle deficiencies include areas with either existing bicycle facilities with high levels of traffic stress, lack of dedicated bicycle facilities or bicycle facilities with major safety concerns.

Facility Gaps or Poor Conditions

Similar to the pedestrian facilities, the bicycle facilities from the centralized MPO area (or Albany) to the outlying areas south to Tangent, west to North Albany and north to Millersburg rate poorly and are characterized by high levels of traffic stress (LTS). Figure 3 shows locations with LTS 3 and 4, which indicate areas that only experienced riders would be typically willing to ride. Such locations are not attractive to inexperienced riders, including those riding with children. Specific deficiencies for these segments are included in the Existing Conditions Memorandum.

In general, high vehicular speeds and volumes, multiple adjacent travel lanes and frequent ‘blockage’ areas (i.e. driveways, loading zones, bus stops or parking maneuvers) contribute to high levels of stress. The ODOT Multimodal Analysis includes motor vehicle traffic volume as contributing factor to determine the level of traffic stress for bicycles on facilities defined as “rural” segment types⁸. Generally, the rural segments within the AAMPO area currently have high levels of traffic stress and the anticipated volume growth by 2040 will compound the traffic stress felt by cyclists. Rural character segments⁹ that currently have high levels of traffic stress and anticipate at least a 50 percent increase in motor vehicle volume growth (relative to existing traffic volumes) include:

- Ellingson Road
- Lochner Road
- Grand Prairie Road (east of Lexington Street)
- Knox Butte Road (east of Scaravel Hill Road)
- Scarvel Hill Road
- Scenic Drive
- Oak Grove Drive
- Palestine Avenue
- OR 164 (west of the Santiam River)

⁷ Additional gaps or deficiencies on the local system were not identified.

⁸ The “rural” segment designation is categorized by the technical analysis methodology in cases where a rural character exists or travel speeds are 45 miles per hour or greater, even if the segment is located within an MPO.

⁹ Low volume, higher speed roadways near the edges of the MPO boundary.

Traffic volume is not directly included in the LTS analysis for urban roadways, however traffic volume can impact a cyclist's route choice. Urban segments that currently have high levels of traffic stress and anticipate at least a 50 percent increase in motor vehicle volume growth (relative to existing volumes) include:

- 1st Avenue
- 2nd Avenue
- Grand Prairie Road (west of Lexington Street)
- Columbus Street
- Seven Mile Lane
- Goldfish Farm Road
- Dogwood Avenue
- Knox Butte Road (west of Scrael Hill Road)
- Quarry Road
- Valley View Drive
- Old Salem Road
- OR 164 (east of the Santiam River)
- Main Street/Jefferson-Scio Drive
- North Avenue/Marion Road
- Portions of US 20
- Portions of OR 99E

The outlying MPO areas also have future projected employment and household growth, such as the high employment growth in Millersburg and residential growth in Jefferson. Improving the bicycle facilities to have little to moderate levels of traffic stress can increase bicycle connectivity and provide employees with comfortable multi-modal commuter options.

Bicycle Safety

The two locations identified as high vehicle-pedestrian crash areas are also high vehicle-bicycle crash areas. Both the US 20 couplet (Ellsworth Street and Lyons Street) through downtown Albany and the area surrounding Heritage Plaza Shopping Center have experience a high number of vehicle-bicycle crashes.

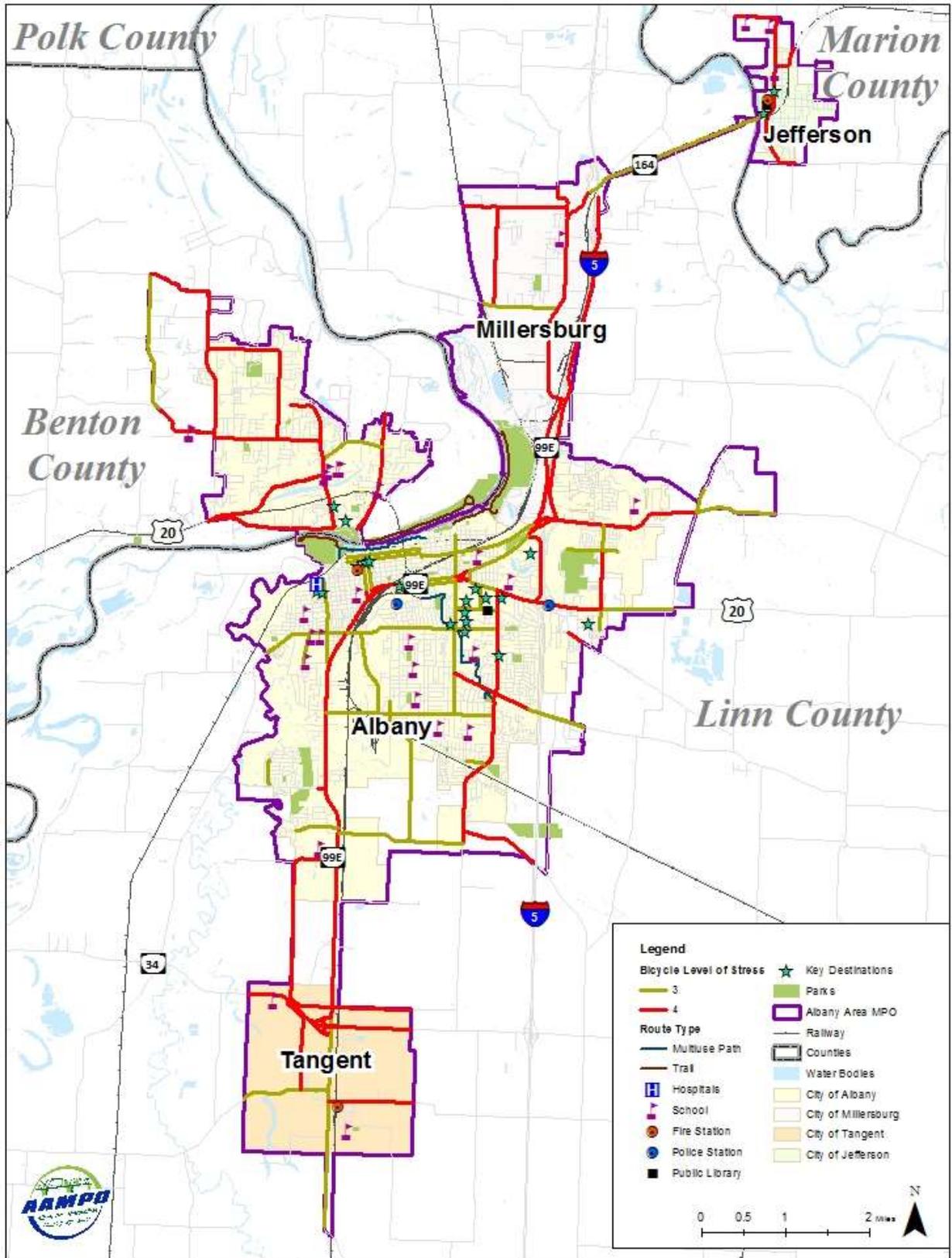


Figure 3: High Stress Bicycle Locations (LTS 3 or 4) on Major Roadways

Bicycle Needs from Prior Plans

Additional needs with regional significance that have been identified in past planning efforts include:

- Support facilities, such as secure parking and worksite changing facilities, are also needed to make bicycling a practical alternative. (Albany TSP)
- The great majority of crashes occurred on dedicated bikeways, apart from the US 20 Lyon/Ellsworth couplet, which does not have bicycle facilities but had four bicycle crashes during the study period. Future investment in the bicycle network should focus on improving the performance and safety of existing bicycle routes, in addition to creating new routes such as off-street paths and/or bicycle boulevards. (Albany TSP)
- Inventory and identify bike lane gaps (Linn County Parks and Recreation Plan, Marion County Parks Master Plan)

Other Modal Needs from Prior Plans

Truck Freight Issues and Needs

As mentioned above, I-5 and US 20 are designated freight routes throughout the AAMPO area. These two corridors help to support economic growth and it is important to ensure safe and efficient freight movements along these freight routes throughout the AAMPO area. Key considerations for safe and efficient freight movements include capacity constraints, travel time reliability, physical dimensions of the corridor, environmental impacts, redundancy and access to intermodal facilities. Collaboration within Oregon and between neighboring states and well as securing freight funding are other important considerations.

The following truck freight needs have been identified for the area in prior plans:

- The Oregon Freight Plan identifies I-5 and US 20 as strategic freight corridors. Freight issues that need to be addressed in order to ensure an efficient and sustainable freight system that supports economic growth are also identified.
 - A clearly defined, multimodal “Strategic Freight System,” is essential in order to focus freight system improvements, maintenance and protection on the freight corridors that play the most critical role in supporting the state’s economy. Currently, this does not exist.
 - Capacity constraints, congestion, unreliability and geometric deficiencies in key highway, rail, air and marine freight corridors cause inefficiencies in statewide freight movement.
 - Congestion and unreliable travel time on roads to access major intermodal facilities can cause disruptions to freight movement and industry supply chains.
 - Improvements to the efficiency, reliability and safety of long-haul freight corridors require collaboration between Oregon and neighboring states.
 - Changes to the physical dimensions of a highway may either accommodate or restrict permitted loads throughout the entire state and can cause connectivity issues to key businesses and freight generating activities.
 - Freight needs to be able to move throughout the state in a manner that is as safe as possible. Its movement may impact safety in Oregon communities and risk to the environment.
 - Industrial land supply for freight-dependent land uses may be insufficient to meet future demand. Lack of necessary land use protections may threaten the viability of freight transportation systems.
 - Freight emissions include pollutants such as greenhouse gases and particulate matter that contribute to climate change and health risk concerns.

- National Environmental Policy Act (NEPA) review procedures and permitting requirements for freight projects involve complexities that, if overlooked, can result in negative impacts to project development and implementation cycles.
 - New and emerging safety, security, and environmental regulations, though beneficial, can be confusing to shippers and carriers and be expensive to implement.
 - The freight system in Oregon lacks system redundancy in several key locations. This leaves it vulnerable to disruptions that threaten freight system continuity, especially during emergencies.
 - Lack of a sustained source of statewide freight funding decreases the ability of the public sector to plan for long- and medium-term freight needs in a comprehensive manner.
 - Limited availability of state transportation funds means that use of existing sources of funding must be effectively optimized.
 - The lack of a continuous federal freight funding source makes it very challenging for Oregon to implement the ongoing planning and programming of freight projects. Those projects that are of regional or national significance should be eligible for federal participation and funding.
 - The economic importance of freight is not always understood or appreciated by the public.
- I-5 is a designated truck route in the area, with 17% of daily traffic on the Albany stretch of I-5 consisting of vehicles with three or more axles. (Albany TSP)
 - OR 34 is the only other designated truck route in the area. Both I-5 and OR 34 are expected to have between 20 and 50 percent motor vehicle traffic growth (relative to existing volumes) by 2040.
 - Strategic Visioning sessions in 2004 and 2005 identified a need for a better connection for trucks from South Albany industries to I-5 as well as improvements to the rail/truck modal connection. (Albany TSP)

Rail Freight Issues and Needs

At grade rail crossings create both travel time and connectivity issues within the AAMPO area. Albany and Jefferson have identified railroad blockage issues creating delay for other modes. The City of Tangent is concerned with connectivity issues regarding emergency vehicles.

The following rail freight needs have been identified in prior plans:

- The Albany Rail Yard, situated just north of Queen Avenue on the east side of OR 99E, is a crossing point for all of the UPRR rail lines in Albany and is one of the most

capacity-constrained segments on the UPRR resulting in long delays while passing trains await permissions to cross. (Albany TSP)

- To help minimize the blockage at the Queen Avenue crossing the Albany Rail Corridor Improvement Project¹⁰ will add a short section of track in Albany to connect the Toledo Branch directly to the Millersburg Yard. The nearly \$8.7 million dollar project will also rehabilitate the Millersburg Yard. The additional track will allow switching movements and training building to move from the Albany Yard to the Millersburg Yard.
- Retain at-grade rail crossings, if possible. Having multiple crossings helps provide secondary routes for emergency vehicles serving the area and creates more opportunities for street connectivity, especially benefiting bicyclists and pedestrians. (Tangent TSP)
- Improvements to alleviate railroad blockages, which may include grade separated crossings (Jefferson TSP)

ITS Needs

The ITS infrastructure within the AAMPO area is limited. All modes could benefit from various ITS improvements, such as travel time reliability for motor vehicles and transit or safety improvements for bicycles and pedestrians.

The Central Willamette Valley ITS Plan identified the following strategies to address ITS needs:

- Expand Traveler Information Services, specifically on arterial roadways and for all modes
- Implement Transit Service Enhancements, through real-time updates and increased speed
- Enhance Safety of Alternative Modes, through bicycle detection and improved signal timing
- Improve Corridor System Management Capabilities, through improved signal timing, video monitoring, vehicle detection, and transit signal prioritization
- Construct a Regional Communications Network Between Agencies, particularly for data exchange and video sharing
- Construct Virtual Traffic Operations Centers, by providing staffing resources
- Enable Emergency Service Coordination, specifically for planning and operations

The I-5 optimization study identified four strategies:

- Traffic surveillance
- Ramp metering

¹⁰ ConnectOregon II Projects, ODOT & Oregon Transportation Commission, June 2008.

- Incident information
- Variable speed signs that could be weather-responsive

Other Modal Issues and Needs

The other plans included in the plan review did not identify issues to address for air, marine, or pipelines.