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RE: Motor vehicle and auxiliary Lane policies in draft 2023 RTP update

Dear Chair Kloster and TPAC members,

I want to express appreciation to Metro staff for their responsiveness to ODOT's letter on the March 8 version of draft Chapter 3 of the 2023 Regional Transportation Plan (RTP) update. The edits on Motor Vehicle Network, Pricing and Mobility policy in the "4/11/23 Track Changes" version largely addressed ODOT's concerns.

The 4/11 version also contains new language on the Motor Vehicle Network, however, with no analysis of the possible effects of the proposed new policies to the system and the RTP goals of economy, mobility, safety, equity and climate. This letter responds to those unanticipated changes by reviewing the intent and application of state and regional policies on the throughway system, and requests specific edits to Metro's proposed language.

Given the substantive and unexpected nature of the Motor Vehicle proposals, please view this letter as an initial response. Additional or adjusted responses may be forthcoming. ODOT is also preparing materials on auxiliary lanes to be shared with TPAC and JPACT soon.

STATE AND REGIONAL THROUGHWAY POLICIES

The ultimate purpose of the planned regional motor vehicle network is to support the 2040 Growth Concept, which identifies the locations, types and intensities of land use in order to maintain the urban growth boundary even as the region grows its population and economy. An adequate, multi-modal transportation system is necessary to support this planned development, as reflected in Division 12 of the OARs dedicated to transportation planning and applied in TSPs. The regional throughway system must also accommodate statewide and interstate travel needs, as acknowledged in the RTP.

ODOT's throughway investments are guided by Oregon Highway Plan (OHP) Policy 1G: *"It is the policy of the State of Oregon to maintain highway performance and improve safety by improving system efficiency and management before adding capacity."* Policy 1G lists measures to maintain performance and improve safety in order of priority: (1) protect the existing system, (2) improve efficiency and capacity, (3) add capacity, and (4) add new facilities.

ODOT also adheres to and supports the longstanding RTP policies on the build out and operation of the planned regional motor vehicle network. These policies focus on a network that is efficient and effective rather than expansive. The direction in the existing RTP motor vehicle policies is to:

- Preserve and maintain…in a manner that improves safety, security and resiliency (Policy 1)
- Actively manage and optimize capacity (Policy 3)
- Strategically expand….to maintain mobility and accessibility and improve reliability (Policy 5)

- Address safety needs…[through] implementation of cost-effective crash reduction engineering measures (Policy 10)

Policy 12 then restates OHP Policy 1G's measures to protect the existing system, reinforcing that is the first approach.

These measures to protect the existing system are not always adequate to *maintain highway performance and improve safety* (OHP) or *preserve, maintain, optimize and improve safety* (RTP). The OHP directs ODOT to then apply measures to improve efficiency and capacity through "minor improvements to existing highway facilities such as widening highway shoulders or adding auxiliary lane." The existing RTP reinforces this approach in Policy 5: "Strategically expand the region's throughway network up to six travel lanes plus auxiliary lanes between interchanges…" Neither the OHP nor the existing RTP define auxiliary lanes as inherently resulting in new motor vehicle capacity. Instead the existing RTP is in alignment with the OHP in its policy that auxiliary lanes are a measure to *preserve, maintain, optimize and improve* the network.

Climate Friendly and Equity Communities

In 2022, the state Land Conservation and Development Commission adopted new and amended rules known as Climate Friendly and Equity Communities (CFEC). Among other changes, the new OAR 660-012-0830 calls for enhanced review of select roadway projects, listing facility types as well as a set of exceptions. Metro has proposed RTP updates that would link the definition of capacity to those select roadway projects. Metro's January 25, 2023, letter to DLCD acknowledges that "Metro considers projects in an adopted RTP or TSP exempt from additional review as described by this section [0830]," and Metro staff confirmed that during the April 19 MTAC-TPAC workshop.

POLICY APPLICATION AND USE OF AUXILIARY LANES

ODOT's approach to *preserve, maintain, optimize and improve safety* in the Portland region has focused entirely on 1G measures 1 (protect) and 2 (improve). ODOT has no planned or anticipated projects that would expand beyond the planned system of six general purpose travel lanes on throughways. The regional population jumped by around 12% between 2010 and 2020 (266,403 new residents in the Portland-Vancouver-Hillsboro MSA) and projections show the Metro area adding substantial population growth by 2040, up to 3 million residents up from 2.5 million today. Even among that growth, ODOT has been able to maintain and improve the throughway system in part by utilizing data-driven strategic investments such as intelligent transportation systems (ITS), HOV lanes, bus on shoulder and soon congestion pricing.

Those measures are not always adequate or appropriate, however. In accordance with state and regional policy, ODOT then considers the application of auxiliary lanes in order to actively manage and optimize capacity of the existing network. An auxiliary lane is an additional lane segment designed to effectively manage and restore existing capacity currently degraded by operational performance. An auxiliary lane is expected to **restore existing system capacity** caused by poor operations and address existing and future safety issues related to unique geometric and operational factors (e.g., intersections, grades, ramp spacing, and queuing build-up). These are locations where ODOT does not expect a statistically significant increase in vehicular capacity to the adjacent roadway system.

In other words, the purpose of freeway auxiliary lanes is to optimize the existing capacity of six through lanes, by providing adequate space for merging, diverging, and weaving traffic without negatively impacting the capacity of the adjacent through lanes that are moving longer distance statewide and regional trips. A freeway auxiliary lane also greatly improves safety (documented through years of studies) by providing the space needed for these movements. Even with auxiliary lanes, the through capacity of the facility does not increase as the number of lanes entering the auxiliary lane section is the same as the number of lanes leaving (3 through lanes in each direction).

Auxiliary lanes can also provide another function, which is to accommodate local trips in constrained locations such as river crossings. This is not a desired function of throughways, but can be the most cost and resource efficient and least impactful option to maintain mobility and accessibility. For example, local traffic uses I-5 to cross the Tualatin River because there is no bridge on the local roadway network at SW 65th Avenue. These local trips created congestion on the throughway, impacting regional, statewide and interstate travel. Rather than a city or county constructing a new bridge, the more efficient option for the network was to add an auxiliary lane to I-5, thereby restoring the capacity of the throughway.

Similarly, auxiliary lanes can be used to keep regional trips on the throughway system instead of diverting them to local roadways. These system to system interchange connections currently exist on I-5 between OR-217 and I-205, and is the impetus for the uncommon application of auxiliary lanes that extend beyond one interchange. The intention is not to "add capacity" to the six through lanes, it is rather to serve trips that are traveling from one interchange to another and don't want to be on the mainline Interstate. In these locations, trips in auxiliary lanes are not seeking through trips in general travel lanes on I-5, but are either local trips trying to cross a river, or regional trips seeking to get from Highway 217 to I-205. Forcing these trips to merge into the through lanes of I-5 in the past created safety and operational impacts.

To better explain the purpose and use of auxiliary lanes, here are answers to some likely questions:

How does ODOT identify and plan auxiliary lanes?

As explained above, in line with OHP Policy 1G and RTP Motor Vehicle Policy 12, ODOT seeks to first protect the existing system, but may need to also improve the system operations to address bottlenecks and restore capacity of the existing system. The process by which ODOT pursues an auxiliary lane option is to a) apply the regional mobility policy to identify deficiencies on the throughway system and b) to undertake an analysis of system improvement options such as those in the Corridor Bottleneck Operations Study (CBOS).

What conditions degrade throughway capacity?

The proposed regional mobility policy will be an improved tool to identify locations where an undeniable need exists in the throughway system, using a speed threshold of 35 mph over 4+ hours, to flag locations where congestion has degraded operations. The main causes of these conditions are high volumes and interchange friction.

High volumes are caused by local trips using the throughway network, such as in locations where limited roadway networks are available, substandard interchange spacing, and areas around high demand land uses. Interchange friction occurs where closely spaced interchanges necessitate merging and weaving reduce that capacity, causing crashes and delays. This condition reduces the efficiency of the existing through lanes and forces local traffic to make longer trips on the local system to get where they need to go and avoid freeway congestion – in other words, diversion.

ODOT's highway design manual has interchange spacing standards—a minimum of one mile in urban areas and three miles in rural areas—to minimize this type of friction and maintain safe highway operations and mobility. These standards can be at odds with accessibility demands in dense urban areas, however. In the case of multiple closely spaced interchanges with high demand, or system to system or interstate to interstate connections with local interchanges in between, auxiliary lanes can serve as a strategic intervention to "maintain mobility and accessibility" as called for in RTP Policy 5.

What are the consequences of not maintaining throughway capacity?

The 2040 Growth Concept relies on the planned transportation network, including the throughway system as well as other modes such as transit, walking and biking. Degraded operations on throughways decreases transportation efficiency for regional, statewide, and interstate travel, and may impact the region's planned land use development. It also diverts regional travel to local roadways which support the bulk of transit, bicycle and pedestrian trips, creating challenges for the safe and effective use of those modes. In other words, when the throughway system is not operating safely and effectively as planned, all travel modes are impacted.

A roadway network that is not functioning as planned also has economic impacts, running contrary to Regional Freight Network policy 2 which says, "Manage the region's multimodal freight network to reduce delay, increase reliability and efficiency, improve safety and provide shipping choices." Delayed and inefficient freight has effects on statewide and regional economic activities that need to get goods and services to locations throughout the Metro area.

What are alternatives to auxiliary lanes?

As called for by OHP Policy 1G and RTP Policy 12, the prioritized options for protecting throughways are system and demand management strategies. Examples of these include TSMO and ITS investments and land use regulations such as an interchange area management plan (IAMP). ODOT does not operate transit yet seeks to provide transit facilities when possible—such as our Bus on Shoulder programs with C-TRAN and SMART—and participates in multi-agency planning efforts such as the Southwest Corridor Plan, Interstate Bridge Replacement light rail, and the 82nd Avenue bus rapid transit project.

When these options are not effective, ODOT will seek to improve the existing facilities. There are options beyond auxiliary lanes. One option is a collector-distributor, or CD road, that runs parallel to but separate from the general travel lanes. ODOT is currently constructing a CD road along OR-217 between Allen Boulevard and Denney Road, and another exists along I-205 between Division Street and Powell Boulevard. The CD road approach takes up more land and is more expensive than auxiliary lanes.

Another option is to close interchanges to reduce friction between close interchanges and "restore" throughway operations. In some areas, this option is feasible, for example, ODOT's most recent CBOS report identifies possible closure locations along I-405 in downtown Portland. In many areas, however, close interchanges result in longer, less efficient trips and reduced accessibility to 2040 centers.

When does an auxiliary lane become a general purpose travel lane?

OAR 660-012-0830 calls for enhanced review of new or extended auxiliary lanes with a total length of one-half mile or more, but also exempts "modifications necessary to address safety needs." ODOT supports Metro's efforts to link RTP capacity definitions to 0830. The pertinent discussion, however, appears to be determining when an auxiliary lane restores capacity and/or improves safety, and when does it add capacity beyond the planned or existing system.

As noted above, some auxiliary lanes address local trips diverted onto the throughway system (as on I-5 at the Tualatin River) or system to system interchange connections (as on I-5 between OR-217 and I-205). These auxiliary lanes do increase the effective capacity at the location of the auxiliary lane by

improving flow efficiency that in turn improves the effective capacity reductions created by congestion. However, while the traffic flow and throughput at the location of an auxiliary lane increase, the effect does not mean there is additional capacity above the maximum capacity of the existing through general purpose lanes – as if there are three lanes approaching and three leaving, there is no additional through lane capacity than what those lanes can provide.

In addition, ODOT has just updated its Analysis Procedures Manual, which has a new sketch analysis tool to evaluate all types of auxiliary lanes (more than just freeways, but it includes freeways too). This tool can help identify situations where more discussion is needed. The analysis process will help document the length that is needed to accommodate the various planned volumes just for a weaving conflict area. This means that if the proposed length of the auxiliary lane is less than required to fully and safely handle the merging, diverging, and weaving traffic then it is only meeting the operational and safety need and not adding through capacity benefit. This analysis will help determine the point where a proposed improvement may act more like a system capacity increase than for addressing point operation and safety. This new section (Appendix 10A) was published and now is available on the APM web site as of 4/6/23: https://www.oregon.gov/odot/Planning/Documents/APMv2_App10A.pdf

REQUESTED CHANGES TO METRO STAFF PROPOSALS

The 4/11 draft included substantial edits from Metro not previously discussed, and we wish Metro staff had engaged ODOT directly on this possibility. Extensive changes were proposed to the Glossary as well as the policies and text of the Motor Vehicle Network section.

ODOT's general responses to these proposals are:

- We support the RTP utilizing OAR 660-012-0830 for definitions and process.
- The RTP needs to remain factual and not become editorial in the absence of facts, data or analysis.
- Major changes to policy should be requested and discussed by TPAC and JPACT as the MPO policy boards, and not initiated staff without analysis or prior discussion.
- The regional transportation network must nimbly adjust to create improvements in operations and mobility that advance the RTP goals of equity, climate, safety, mobility and economic development. Being overly prescriptive in a way that limits operational responsiveness suggests a lack of trust in the cities, counties, and transportation agencies operating the regional system.

Glossary

Metro staff updated several definitions related to motor vehicle network. Some of the edits directly mirror OAR 660-012-0830, while other changes add value based language that may not be factual.

- **ODOT Response #1:** Linking RTP definitions to OARs is appropriate and helpful, ensuring policy consistency among the OAR, OTP and RTP when following both state regulations and the regional plan. ODOT recommends citing the OAR, in case it is revised, to ensure continued linkage.

The Auxiliary lane definition was updated to include OAR 0830 language. Metro staff also added, "By design, auxiliary lanes add additional motor vehicle capacity and even more capacity is added if auxiliary lanes extend through an interchange."

- **ODOT Response #2:** Adding language above and beyond 0830 goes against the linkage with state regulations and creates a situation out of sync with the rest of the state. In addition, the statement, "by design, auxiliary lanes add additional motor vehicle capacity" is problematic and not inherently

true, as thoroughly spelled out in this letter. This language fails to account for the type of capacity and the operational impacts to through traffic without such improvements. ODOT requests a simplified definition that cites the OAR:

> *Consistent with OAR 660-012-0830, auxiliary lane means the portion of the roadway adjoining the traveled way for speed change, turning, weaving, truck climbing, maneuvering of entering and leaving traffic, and other purposes supplementary to through-traffic movement.*

The Capacity definition was updated to use OAR 0830 language that defines proposed roadway projects that must undergo enhanced review, in Section (1)(a). The glossary however does not cite the exceptions to this review also included in 0830, in Section (1)(b).

- **ODOT Response #3:** ODOT supports tying the definition of capacity to OAR 0830, Section 1, which links together state policy with the regional planning and CMP process. To be fully consistent with state policy, however, the glossary must also cite the exceptions listed for safety, multi-modal and operational improvements. ODOT requests the following addition with the full list of exceptions:

  > "*…OAR 660-012-0830 includes exceptions for enhanced review for certain motor vehicle facilities, which are therefore exempt from this definition of capacity: (A) Changes expected to have a capital cost of less than $5 million; (B) Changes that reallocate or dedicate right of way to provide more space for pedestrian, bicycle, transit, or high-occupancy vehicle facilities; (C) Facilities with no more than one general purpose travel lane in each direction, with or without one turn lane; (D) Changes to intersections that do not increase the number of lanes, including implementation of a roundabout; (E) Access management, including the addition or extension of medians; (F) Modifications necessary to address safety needs; or (G) Operational changes, including changes to signals, signage, striping, surfacing, or intelligent transportation systems.*"

The Capacity Expansion definition was substantially updated.

ODOT Response #4: This is an unneeded entry in the RTP Glossary:

- The term "capacity expansion" does not appear otherwise in draft Chapter 3.
- The addition of "typically adding a general-purpose through lane or auxiliary lane" is unnecessary given more specific definition of Capacity now included.
- The added language starting with "Section 3.3.4…" belongs in the body of Chapter 3 and not a Glossary of Definitions. In fact, it repeats the text at the start of Section 3.3.4.
- A reference to the Functional Plan is not appropriate, as this policy plan directly influences that implementation ordinance, not vice versa. In other words, it creates a circular reference.

Given the above, ODOT requests deletion of this definition. Barring that, ODOT requests simplification along the lines of, "*Constructed or operational improvements to the regional motor vehicle network that increase the capacity of the system, as defined in OAR 660-012-0830. See Sections 3.3.3 and 3.3.4 for related policies and procedures.*"

Policies

Metro staff updated several Motor Vehicle Network policies and added a new one.

Policy 3 was altered to include the phrase, "to maintain mobility and accessibility and improve reliability" which was removed from Policy 5. Policy 5 was adjusted to change "strategically expand" to "complete" and clarifies that the planned throughway network is up to six lanes, and now references the 2040 Growth Concept. Metro also removed auxiliary lanes and the reference to "regional, statewide, and interstate travel" which does appear in Policy 3.

- **ODOT Response #5A:** Moving the "maintain" language to Policy 3 is supportive of TSMO strategies. The change highlights the shared desire to make the best use of the network, with strategic investments necessary for active optimization. ODOT also supports the reference to the 2040 Growth Concept in Policy 5.

- **ODOT Response #5B:** Removing "auxiliary lanes where appropriate" is a major policy shift not raised at any other point in the RTP update process over the past year. As explained earlier in this letter, "auxiliary lanes where appropriate" are key to optimizing capacity on the planned throughway system. Degraded operations due to congestion and safety problems means that there are bottlenecks where throughput effectively drops below three travel lanes, and investments are needed to restore capacity as planned and anticipated in the 2040 Growth Concept and in TSPs, and to support the RTP goals. ODOT requests that phrase be restored to Policy 5, or updated to "and auxiliary lanes to restore throughway capacity".

Metro struck proposed Policy 6 and replaced it with a rewritten Policy 12. The newly proposed Policy 6 keeps the list of "protect" measures from OHP Policy 1G, now specifically calls out auxiliary lanes over one-half mile, and replaces "adequately address throughway deficiencies and bottlenecks" with "adequately address identified needs consistent with the Congestion Management Process and Regional Mobility Policy." Metro staff have also proposed a new auxiliary lane policy, without prior discussion and not based on JPACT direction or system analysis.

- **ODOT Response #6A:** ODOT appreciates Metro restoring "the planned system" to the policy language, in both Policy 6 and 12, and linking Policy 6 to the Regional Mobility Policy, as requested.

- **ODOT Response #6B:** The proposed language in Policy 6 and the new policy specifically calls out auxiliary lanes and equates them to new capacity. As discussed earlier in this letter, in many circumstances auxiliary lanes are used to restore capacity, improve safety and maintain local accessibility. It is also unclear why Metro is singling out auxiliary lanes and not also addressing other roadway projects listed in OAR 0830 such as interchanges, nor not taking the 0830's exceptions into account. The reference to "localized safety issues" is unclear and unexplained as well. Overall these changes are puzzling, unanticipated, and inconsistent with other policy approaches within in RTP. Given these challenges, ODOT requests that Metro staff:

    - Remove the phrase, "including adding or extending an auxiliary lane of more than one-half mile" from proposed Policy 6.

    - Engage directly with ODOT on its policy intentions, so that we may work together on a clear, consistent and agreed upon approach in the RTP.

Other new language

Metro staff added two paragraphs related to auxiliary lanes to Section 3.3.3.2. Some of the content reflects agreed upon or factual language, but some is speculative and value laden.

- **ODOT Response #7A:** ODOT requests several additions to the first paragraph:
    - Add this language after the second sentence: An auxiliary lane is designed to effectively manage and restore existing capacity degraded by operational performance and to address existing and future safety issues related to unique geometric and operational factors.
    - Add to the list of the uses of auxiliary lanes, "improving the existing system", "restoring planned capacity" and "maintaining local accessibility" as uses of auxiliary lanes.
- **ODOT Response #7B:** For the second paragraph, it appears Metro did not utilize its modeling group to undertake a traffic analysis, or consult with ODOT roadway or traffic engineers on this issue. Assertions are inappropriate for a document such as the RTP. For example, the statement, "by design, auxiliary lanes add additional motor vehicle capacity" is problematic and not inherently true, as thoroughly spelled out in this letter. ODOT requests that Metro strike the second paragraph and work directly with ODOT, and potentially WSDOT, to further explain its intentions, modeling work and analysis undertaken, and ways to best align 0830 with the Congestion Management Process.

ODOT is hopeful that further discussions on policy and implementation will lead to improved and agreed upon outcomes.

Sincerely,

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