

## Appendix: November 21, 2019 Freight Advisory Committee – Tabletop Exercise Comments

### Tabletop Discussions – Last-Mile Delivery

#### **Q1: What are the major effects of last-mile freight on...**

- **State Highway Systems?**

Table 1 (T1): More warehouses are being build closer to customers – roadway congestion near these distribution centers. Increased traffic due to e-commerce. Repurposing of malls (Ohio has examples). Target uses stores as fulfillment centers under omnichannel retail. Safe Routes to Schools challenges and conflicts. How will warehouse decentralization impact highways? How does item size relate to the anticipated delivery time?

Table 2 (T2): Heavy truck traffic and congestion (more trucks and more weight lead to wear and tear on roads); potential for more accidents between large trucks and commuter vehicles; [unsafe] merging patterns at exits; not wide enough shoulders; barriers on the road; construction vehicles move on and off the highway – slowing traffic in express lane. Local last-mile freight has a systematic effect to the state system: impact to enforcement; state system also has an impact on the local road system because the last mile / first mile are usually local roads; using the last mile to make large deliveries on smaller unsafe roads; infrastructure can't handle the weight. Need to think of the state highway system and local systems as a "single system."

Table 3 (T3): Usage, damage, increasing congestion, pollution, safety. Stress and drivers risking safety to meet deadlines. Greater mix of traffic. Industry is making larger vehicles to maximize traffic – efficiency. Last-mile is most-costly stage of transportation.

Table 4 (T4): Congestion, road condition/repair, safety, environmental, air quality non-attainment.

Table 5 (T5): Planning for the future: what works today may not work in five years. Roadway designs.

Table 6 (T6): Heavy vehicles/weight does damage. STH has a thicker base, generally – twelve inches of concrete. Potential congestion.

Table 7 (T7): Demand for fuel-efficient movement of goods may cause more freight to switch to rail and fewer trucks will need to be on roadways. There is an urban vs. rural split. In urban areas, goods historically came in to the retailers in the city center using state highways and local systems. But now, those goods are going to a retail warehouse on the city edge, so there is the same use of state highways, but less use of local systems. In rural areas, the product is now getting shipped to homes, rather than those people making trips into the city to go to a retailer. So, rural local systems see more congestion and stress from trucks. [State systems seeing] damage to highway infrastructure and increased maintenance costs as the economy is driving higher volumes. Increased traffic. Mail trucks – noise, pollution, and traffic. Government vs.

private delivery services. Security – drivers and vehicles.

- **Local Systems?**

T1: More warehouses are being build closer to customers – roadway congestion near these distribution centers. Congestion from more delivery vehicles at distribution centers. Repurposing of malls (Ohio has examples; so too does Fond du Lac). Home delivery? Target uses stores as fulfillment centers under omnichannel retail. Parking challenges – lots of drivers replaced by fleets of AVs and other delivery vehicles. Connected/automated vehicles. Safe Routes to Schools challenges and conflicts - opportunities/advocacy? Also bike/ped conflicts – challenging Complete Streets. Changing values for curbside space. How is last-mile freight demand coordinated for local roads?

T2: State system also has an impact on the local road system because the last mile / first mile are usually local roads; using the last mile to make large deliveries on smaller unsafe roads; infrastructure can't handle the weight. Need to think of the state highway system and local systems as a "single system." Is it possible to increase enforcement on local systems? It may not be possible to increase load limits. Last-mile delivery of manure at town level is a major problem.

T3: Weight damage. Congestion. Noise, pollution, safety concerns. Need to accommodate OSOW on local systems

T4: Congestion, double-parking and other curb conflicts, road conditions and more frequent repairs needed, safety concerns due to employee overstress and overwork, air quality degradation, larger vehicles, use of lockers, fewer personal miles?

T5: Local government concerns.

T6: Town roads have weight limits, but they are abused. Local governments bear the brunt of the costs (example – with wind turbines, cranes). Continuing geometric issues – recent reconstruction projects may restrict where heavy trucks and long trucks can go – intersections and geometrics. Potential congestion.

T7: An increase in the number of deliveries or e-commerce pickups will lead to congestion. More noise on local streets because of increased truck traffic. Delivery trucks are loud and don't follow a mail route; they use GPS-optimized routes and may drive the same street several times over the course of a few hours. There are also security concerns when shippers are independent, contracted drivers (i.e., Uber Eats) who are not uniformed and the vehicle has no markings indicating delivery service as they just use their personal car. This raises questions about how we can ensure that person is licensed and regulated. [Local systems seeing] damage to infrastructure and increased maintenance costs. Increased traffic.

**Q2: How do the effects of last-mile freight impact other transportation system users?**

T1: Increased congestion. Complete Streets challenges for bike/ped users. Snow-clearance issues – only so many places to put snow piles. Crashes. Competition for qualified drivers (shortage of 250,000 by 2025). Truck weight impacts: car trips vs. truck trips for road damage: more heavyweight loads on local roads reduce longevity, accelerate deterioration of infrastructure. Truck turning radii requires more space for longer and wider vehicles – otherwise issues with curb damage and limited access to dead end streets and cul-de-sacs. Local street issue: many communities won't plow local streets until major roads are done – or they won't plow them at all due to funding.

T2: All the items listed under question #1 impact other users, including congestion and weight limits. The first/last mile usually has lower weight load with more trips required – full loads need to be separated. Delivery of individual orders [gives] us more travel demand. Many previous trips were able to be completed in a single trip.

T3: Customer satisfaction. Safety issues with sleepy drivers. Less mall traffic – does that help reduce congestion? Last-mile efficiency reduced cost for customer! Image of last-mile drivers; home security video on the news a lot. Trend is helping others stay home; reduce trips per day. Does WisDOT have a map that uses CPT [?] modeling? Established delivery carriers such as UPS, FedEx, and USPS are all experiencing increasing demand from last-mile deliveries. Efficiency: last-mile weight limits are a barrier that forces carriers to transload before using local roads, adding costs and constraining shipping. County roads are unable to handle loads. Different “state” systems between rural and urban. Last mile drivers

T4: More traffic will lead to increased congestion. Safety/safe access. Curb access/conflicts will squeeze residents out of parking near their residence (in denser cities). Conflicts between freight deliveries, bikes, busses, and taxis. Air quality. Activity around storage lockers.

T5: Traffic congestion – “urban congestion.” Unsafe driving around commercial vehicles. Distracted driving.

T6: Roundabouts have made things more difficult for oversize loads. Increasing/changing needs of baby boomers – trips for medical purposes, etc. – all tied together and will impact overall system. Local urban delivery blocking traffic. Daylight hours – restrictions on oversize loads. Wisconsin has been good with allowing lights (better than other states). More damage due to more trucks and increased time in traffic.

T7: Congestion. Increased costs and taxes to mitigate road damage. The volume of last-mile drivers is taking qualified drivers away from other sectors that need drivers, contributing to the driver shortage. With maintenance you will see increased construction and delays. More accidents and related delays.

**Q3: What can be anticipated/planned for regarding last mile impacts on...**

- **State Highway Systems?**

T1: There is a gap between shippers and the public sector that needs to be addressed (Dr. Stewart). More repairs and associated delays. Warehousing boom trend. Weight limits – year-round (including bridges) and seasonal during freeze/thaw cycles. Turn-lane access for trucks to safely ingress/egress warehouses on State system.

T2: Last-mile traffic will increase for both systems. Harder to plan for the local system, because the state system is designed for this function [freight movement]. Deployment of autonomous vehicles limited by (lack of) 5G in more rural areas.

T3: Increased demand on local system due to more last-mile demand. Need to incorporate impacts into local land use plans. Impact of drone use is unknown now.

T4: Standard reporting. Transparency. Truck parking efforts.

T5: Road design to handle increased truck weights.

T6: Intermodal meeting (Summits) were well-attended. Private sector needs good quality employees (labor). System is all tied together (i.e., rails between Milwaukee and Chicago – containers should be off the roads and on rails. Rochelle is sitting empty – that’s foolish. Does Milwaukee have enough demand to attract (container service)? Impacts will be different in the future than they are today. Impacts of 3-D printed products. Drones dock-to-dock could work.

T7: More construction, delays, and small package deliveries. Plan for more off-peak delivery times (applies to both STH and local systems). Deliveries can be aggregated to increase efficient operations in high visibility/traffic areas, consolidating trips. Driver shortages where efficiency improvements are limited.

- **Local Systems?**

T1: More small companies popping up, yet almost no conversation with these local businesses on their road issues – yet. Are the roads OK? If changes are needed, can government respond and address the needs? Do businesses change their business models/expectations from roadway challenges? Are developers realistic with what they expect from transportation networks when they develop their sites? How should changes or challenges be brought to the attention of local Chambers of Commerce?

T2: Last-mile traffic will increase for both systems. Harder to plan for the local system, because the state system is designed for this function [freight movement]. Deployment of autonomous vehicles limited by (lack of) 5G in more rural areas.

T3: (NR)

T4: Community actions, including zoning and delivery zone determinations. Establishment of preferred parking zones. Increased commercial parking.

T5: Traffic studies: timing of lights, parking on streets, speed limits

T6: Amazon drop-off center vs. home delivery for \$3 deodorant – increased trips/traffic during noon hour adding traffic to local roads

T7: More construction, delays, and small package deliveries. Plan for more efficient off-peak delivery times (applies to both STH and local systems). Regulating where drone deliveries can

occur. Neighborhood watch programs to combat increase in “porch pirates” due to small package deliveries. Weight limits along local roads can be revised to either encourage or discourage deliveries. Local governments will begin to post bridges more often as heavier loads use them more. As weight limits become more restrictive, the number of trucks on the roads will increase because of smaller loads.

***Q4: What variables/unknown factors limit the ability to plan for last mile impacts? In other words, what can't be anticipated or planned for?***

T1: Technology: nimbleness, CAV – large/long distance; small/local. What business sectors will end? What will emerge? Government ability to respond in a timely manner. Electric system demand: power/recharge peaks for electric cars, busses, and trucks; fleets and equipment; station locations and truck parking restrictions. Global supply chain changes – where will things come from? Federal rules/policy changes. Customer demands: fast delivery, specialization, and convenience. Road construction. Weather (unpredictable). Technology and innovation – impacts.

T2: Weather, construction, and anticipated congestion. Driverless cars are non-existent without 5G data that most of the state does not have. The political environment in regard to infrastructure funding and inability to plan for safety and construction. Investment decisions tied to policy decisions. Quick market changes, like the past [recent] growth in online ordering. Broader impacts due to last mile deliveries: commuters, schools, communities where distribution centers are located.

T3: Amazon took on Wal-Mart; what will take on Amazon? Unknown delivery models of the future. Hard to anticipate what the private sector will do in a particular area. Effects of the health of the economy influence the future.

T4: Changing consumer tastes and trends. Technology, including drones and driverless vehicles. In-store pickup. Changes to retailer practices and policies on returns. Secure locker infrastructure (at condos/apartments).

T5: Population shifts. Technology changes – drones? Driver shortages. Pot/drug legalization.

T6: Non-recurring congestion (accidents, bad weather). Automated vehicles (minivans, computerized – optimizing spacing between vehicles). Different generations have totally different lifestyles. What disruptive technologies will come? We're in a world market – container issues.

T7: Many unknowns related to drone delivery: will it become common? How will it be regulated? Will drop-offs occur curbside, in yards, or at front doors? The driver shortage will continue, but it is unknown how severe it will be. Security, especially related to “porch pirates.” Also, the effects of autonomous vehicles (AVs) is uncertain and they may not be the solution that many believe they could be. It is uncertain if AVs will be full-size vehicles or small delivery robots such as the food delivery robots deployed on the UW-Madison campus. There is also uncertainty in economic growth, which could exacerbate or alleviate the driver shortage. Population movement is uncertain; we may see more people moving to urban centers from rural areas.

***Q5: What are the best strategies/practices to minimize or mitigate the impacts of last-mile freight? Should the operations generating the greatest last-mile impacts be required to contribute to that mitigation? If so, how?***

T1: Wheel taxes to supplement state and federal fuel taxes; potential dedication of sales taxes on purchases of transportation products. Overcoming corporate resistance to paying for their impacts – is their model sustainable? Think innovatively about cost capture. Railway Express model – parcels by rail – revisit old solutions to new challenges? Are corporate promises to customers realistic? Inform local and regional planning agencies (including RPCs and MPOs) on challenges. Will policies be flexible enough for rapid changes? How are countries like Canada, Japan, and the European nations addressing last-mile freight changes? Brainstorm ideas and solutions. Use community engagement. One transportation solution. Use of technology (GPS tracking, E-credentials, driver tablets).

T2: Drones/robotic delivery. Need to think about how we pay for infrastructure [beyond the] gas tax limitations. Need to reform current funding policy: current system does not account for users paying commensurate with use – the more you use, the more you pay. Cost to user should be based on use: miles driven and weight. What will the impact of increased urbanization be on last-mile and vice-versa?

T3: Open communication about last-mile needs. Example given – sawmill located off the MI load approval route. Got mill to pay to upgrade bridge. Consider multi-modal options in the future when planning site locations. Yes, get users to pay – if they are going to be a large traffic generator. Last-mile generators should participate on needed infrastructure upgrades. The intermodal connectors need to be considered (i.e., roads to the Port of Milwaukee).

T4: Regulation and enforcement practices: Fines for idling vehicles – provides a revenue source. Discourage same-day shipping. Permitting – auction operators' licenses for delivery vehicles in congested districts – similar to taxi medallions. Encourage development of centralized locker locations – potentially as replacement for big-box retailers in malls. Repurpose malls.

T5: Willing to pay increased fees if it provides benefits directly to the payer – including permit fees and fuel tax.

T6: Collecting the right data. Not sure that any solution is that easy. Chain reaction. No free lunch – the more you use it, the more you should have to pay. Variable pricing – cost goes up when system has increases in congestion. Start planning now.

T7: AVs could be a solution or a problem, depending on their size. If they are full-size vehicles, it's a problem because of roadway stress, congestion. If they are smaller, it could be okay. It all depends on what is commercially-viable. A slower economy could help by limiting the growth in transportation demand. Companies could start charging for consumer shipping; companies are currently losing billions [of dollars] per quarter on shipping because [they are] trying to compete. This could discourage people from ordering goods online. More rail spurs for consolidation of pick-ups, especially intermodal and transload. Raising funds for infrastructure and creating better roads with more lanes to help alleviate congestion caused by last-mile freight. Because of levy limits this often must be pushed to DOT, but Town road improvements [are] usually not happening because they can't raise the funds for them. Utilize a special tax on Amazon orders or on auto parts to pay for improvements, such as infrastructure related to new distribution centers. Ensure that new roads are planned with last-mile freight and

increased truck volumes in mind. Use traffic impact analysis and identification of traffic generators to improve efficient planning of roads.

### **Tabletop Discussions – Local-Level Freight Planning**

#### ***Q1: What are the most important issues affecting your industry that local-level transportation planners should be aware of, in the categories of infrastructure, Regulatory, and other Areas?***

T1: Infrastructure: Jordan's presentation on Fond du Lac answered this question effectively. Connections with local Chambers of Commerce, and with main industries and trade associations. Duluth-Superior Harbor Technical Advisory Committee as model – diverse group; quarterly meetings. Other MPOs should apply this as a model. Challenge: how to motivate conversations on transportation between local government and local business. The Wisconsin Railroad Commissioner is a weak office – his authority lacks power. Wood on restricted town roads – first mile impediment; get it off the lot. "Build it and they will come" mentality – fails to recognize market forces. Regulatory: HUD Program (Plan) – section on infrastructure. Forestry producers - #1 paper-making state - \$24 billion (forestry); \$50 billion (paper). Weight limits on local roads (can't pay property owners total value). Engage Chambers of Commerce, MPO to facilitate communication process with local industries.

T2: Knowledge of alternative routes / detours during construction. Communications with industry – notify about completion times. Notify of changing demands of clients (such as future increases in OSOW traffic). Feedback mechanisms for notifying about bottlenecks, other issues. Weight restrictions; electronic logs for drivers

T3: Infrastructure: Identify where expansion is needed. OSOW planning; preserving OSOW corridors. Effects of weight restrictions on local roads for freight industries such as timber. Spring road weights. Turning radii. Town roads maintenance. Efficiency. Costs. Regulatory/Other: Per-axle weight limits – Michigan and Minnesota vs. Wisconsin. [Side note: Larry Krueger suggests this for a future meeting topic; suggests Jonathan Lamb of Lake Superior Warehousing as a speaker.] Zoning districts. Refrain from putting industrial parks in underserved industrial areas.

T4: Infrastructure: Road weight limits – both posted and seasonal. Implements of Husbandry (IoH/OSOW) limits – OS and OW. Local bridge postings – often due to deterioration of infrastructure. Regulatory: Do MPOs include opportunity zones in their infrastructure plans? Across all categories: freight industry trends.

T5: First mile – weight restrictions on local networks. Weight restrictions on bridges/culverts – again, first-mile. Local permitting options for weights on local networks.

T6: Sudden (unexpected) congestion – no way of knowing in advance – information of these incidents needs to get out quickly. Move from a 20<sup>th</sup> century system to the 21<sup>st</sup> century – better turn lanes, better infrastructure, improve overhead clearances. Sometimes every solution causes another problem. Where only one route is available, there should be thought of (developing/designating) other routes. Better communication between municipalities is needed. Better contact information for permits (local?) is also needed.

T7: For carriers and the logistics sector, becoming a shipper of choice and being friendly to truck drivers is important. Providing facilities with showers and sleeping facilities is key. These draw in warehouses

and attract people who want to base there. Local government could get involved in state efforts planning for and providing increased truck overnight facilities. Separating bike/ped lanes from traffic (especially large trucks) physically, and not just with paint, is very important. Ensure geometrics such as turn radii are large enough. When re-designing interchanges, staying within the existing footprint and not consuming additional agricultural land away from a farm, it is a loss of income for the producer. Roundabouts should have sufficient geometry for truck movement. Drivers need access to information during trips about where sleeping facilities are and how many spaces are available.

***Q2: What role can state government play in addressing the issues identified in Question 1?***

T1: Grant programs. Serving as a liaison to MPOs and RPCs. Wisconsin Rail Day – bring local planners to event. Build capacity of local/regional planning and economic development entities to help them gain understanding on how the freight sector and individual freight modes operate and evolve. Laws that support keeping rates steady. Sponsor/administrate federal or state grant programs. Road map – MPO/RPC – conferences, local education and outreach efforts. Help FAC to connect with locals? Knowledge for modal needs are in the local communities. Professional development opportunities.

T2: (NR)

T3: More localized regional meetings. Arrange for a tour of the Beaver Dam Wal-Mart facility at the next FAC.

T4: (NR)

T5: Locals always say they don't get enough state funds to fix roads. Require some type of notification when local roads will be posted – make it a statute.

T6: (NR)

T7: "Dumb down" descriptions – use layman terms. The state uses too much jargon and too many acronyms. Explain concepts/programs in simpler language to allow for general public to be able to understand. Transparency, public notification process could be improved. Provide an easier portal for finding information about a specific project. [Levy] gas taxes or road use taxes for funding improvements. For new road plans, reach out to stakeholder businesses about how it will affect their future plans for growth. Be more flexible in order to address private sector concerns. Communicate with local businesses on their needs moving forward – bring them in proactively to discuss how state plans for roadway expansion and business expansion plans could be integrated. Provide improved project updates on Facebook by targeting stakeholders using ZIP code data. Simplify application processes.

***Q3: What role can the private sector play in addressing the issues identified in Question 1?***

T1: Proprietary information – need a mechanism to deliver data to governments and planners. How do shipping associations play a role (capturing trade data)? Both public and private sector analysts need to be/have points of contact. Recognize the economic development perspective – promote business retention and expansion. Manage shipper data (confidentiality agreements). Data cooperative project; businesses can provide information to the public sector. How do trade associations get involved? As a



point of contact for industry. Private sector could communicate data to locals. How would freight changes impact infrastructure?

T2: Industry should support even distribution of costs. More dialogue discussing issues with private sector taking lead – state Chamber of Commerce. Private-public partnerships (local, state, private).

T3: Private sector should come up with weight standards that simplify Wisconsin laws and better match those that are across state lines. Move to infrastructure-friendly rig configurations that don't damage local roads but allow higher weights (federal bridge formula-friendly). Plug industry into planning conversations (urban/land use/site locations). Open communication channels between private companies and public agencies. Private sector needs to be more transparent with data and company shipping patterns – destination data? Private sector should be invited to help write [community-level] comprehensive plans – land use.

T4: Assisting to identify prioritized travel routes for freight. Political and technical engagement with MPOs. Bridge posting standards should be uniformly applied across the state, as some counties seem to have an arbitrary posting determination process.

T5: Private sector is willing to help pay for improvements if it helps them directly.

T6: Share information with communities, DOTs. Bring awareness of business operations and needs to municipalities. Have improved communication with all local officials – share business experience and knowledge. Talk to decision-makers – be more involved. Inform the public about the business's economic benefit to the community and the state. Might be a short-term inconvenience for a longer-term permanent fix of a problem. Haul at night. Ask local government to identify the person/office needed to contact to get permits.

T7: Some form of public-private partnerships and cost sharing should be explored because public sector cannot finance it on its own. Businesses should be willing to accommodate safety changes that DOT wants to make (i.e., consolidating access points/driveways along a corridor). Private sector needs to be involved early in project planning and be ready when DOT does public involvement to share opinions on design. Too often they won't share opinions until designs are made final. Local businesses often don't voice concerns about closures/construction affecting their business until work has started, and then it is too late. Businesses need to accommodate changes to infrastructure.

***Q4: What emerging societal or technological trends should local governments account for as they design their transportation systems in the near- to mid-term? Are there specific recommendations related to those trends?***

T1: Focus on younger people and their transportation demands. How people get around. How different modes interface with other users/needs. Where the freight concentrations exist. The trends and issues here are similar to those for first and last mile urban challenges.

T2: (NR)

T3: (NR)

T4: (NR)

T5: Better materials; better road designs.

T6: (NR)

T7: Place more focus on other modes of transportation. Hydrogen- and battery-powered trains and other propulsion systems. Providing electric charging stations as EV gains larger market share. Need for more urban bike lanes or light rail as transportation preferences change from driving to transit/biking.