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NACTO's 4/17/18 Webinar – Unanswered Questions
"Making Transit Count"

Thank you for tuning in to our webinar! As we were not able to answer all your questions during the event, we have compiled responses to all unanswered questions. If you have any further questions, comments, or concerns, do not hesitate to reach out to events@nacto.org.

Questions for Matthew (NACTO)

1. Please describe how the reliability maps work. What do both maps show?
    a. *The reliability maps (page 8 of Making Transit Count) show how far you can go by walking + transit, from the same place, on the fastest and slowest day of six (i.e. the 15th percentile travel time day, and the 85th percentile travel time day.) You might think of these two areas as 'how far I should be able to go in x minutes' and 'how far I can plan to always be able to go in x minutes.' This shows how impactful transit reliability is on the way that riders experience their own access to the city.*
2. *Are there any studies showing passenger responses to headway delays? Are most people OK with 2 minute delays but irate at 10 minute delays?*
    a. *Yes, but the rider's direct experience of waiting isn't the only reason to use headway rather than lateness. A number of studies, in different settings, have studied this topic of the valuation of delays by assessing how long it feels as if they've spent on certain activities. Across these studies, people tend to estimate waiting for buses or trains at about three times as long as time spent on a moving bus or train. (We tend to underestimate time spent on board, with one minute feeling like 40 seconds, and overestimate time spent waiting, with one minute feeling like two.) So reducing wait time - including time waiting or stopped in traffic/at signals - isn't just good operations management. It's also perceived as more beneficial than simply 'going faster'.*
        i. *This study has a summary table of some wait time vs. moving time results. https://nacto.org/wp-content/uploads/2016/02/11_Fan-et-al-Perception-of-Waiting-Time-at-Transit-Stops-and-Stations_2015.pdf*

Questions for John (Metro Transit)

1. Can you explain where the 140% came from? That seems significant on the scale of, for example, 10 minutes. Have you looked at scaling the threshold for "reasonable headways' based on the scheduled headway?
    a. *Currently we use a 120% level (i.e., actual headways within 120% of the scheduled headway) to define a small gap and 140% level to define a large gap.*

    We continue to refine this standard, including review of what size of gap best represents the boundary between acceptable and unacceptable service reliability.

We also acknowledge that using a percentage can still be confusing, so for service that runs a consistent headway, we also define this standard in terms of minutes. For example, for BRT and LRT services that run every 10 minutes for most of the day, we define this standard as actual headways less than 12 minutes (small gap) or 14 minutes (large gaps).

2. Which program do you use to view/analyze headway gap? Who is responsible monitoring and intervening headway gap?
    a. *We use a variety of internal data manipulation, analysis and visualization tools to report on headways. We are not using any particular transit analysis tool for this. Staff in Service Development, Bus Operations, Rail Operations, and System Performance meet on regular basis to review service reliability data and identify areas for intervention. Both on-time performance and headway performance results are also shared with senior staff during a monthly review of key performance indicators.*

3. How do you collect data of the number of people riding buses?
    a. *Yes. We collect data via both our fare collection systems and our automatic passenger counter (APC) systems on both bus and rail.*

4. What platform are you using to develop the heat maps and other graphic representation of your transit data?
    a. *The heatmaps and other visualizations of the speed data are created with internally developed tools on the R and R Shiny platform.*

5. Is this transit speed visualization tool a custom tool, or a variation of your off the shelf AVL software? Can you please share a link to the tool? How is the raw data cleaned/processed?
    a. *The transit speed visualizations are created with internally developed tools on the R and R Shiny platform. We are not able to share a link, but we would be happy to discuss these tools individually.*

    There are two stages of processing the raw data. Every night, we process all AVL data to link it to the appropriate part of the schedule (route, trip, timepoint interval). Then, at the time of analysis, the individual data points for a route are mapped on to the shape of the route and speeds at each point of the route are calculated. Again, we would be happy to discuss this process in more details on an individual basis.
6. Have there been any metrics looking at comparing a transit trip to an equivalent vehicle trip with the aim to promote making transit service comparable within a certain bandwidth to private vehicle trips for a corridor?
    a. *We have used this approach in some freeway corridors, to provide real-time information to travelers (both online and via road signage) comparing bus and auto travel times. (This is part of our "Smart" park & rides systems: https://www.metrotransit.org/smart-park-rides)*

    We are also exploring use of this approach on both freeway and arterial street corridors for internal planning and operations management purposes and in our partnerships with cities and other roadway managers.

7. These concepts seems to apply mostly to a small number of large cities with very frequent transit service. Any thoughts on how they might be applied to medium and smaller cities with less frequent service?
    a. *John: I agree that headway performance tends to be a measure best applied to high frequency service. But the speed analysis I presented can be applied to any service. Much of traffic engineering is focused on moving cars as smoothly and safely as possible. The focus of "transit" engineering should be to move transit vehicles as smoothly and safely as possible. That should apply even in smaller cities.*

Questions for David and Scott (Toronto)

1. Did Toronto install any raised temporary bulbouts during their pilot? If so, details or photos of these installations would be great.
    a. *No, we have not installed any raised transit platforms on King Street. Temporary and relatively low-cost materials were used for the King Street Transit Pilot, with the understanding that some changes would need to be made throughout the course of the project. For accessibility and safety, we added concrete barriers and tactile strips (yellow mats with truncated domes) at each stop.*

2. Does Toronto have plans for more permanent platform installations on King? Is there a systemwide effort to build platforms/boarding islands?
    a. *Platforms or boarding islands are commonly used at stops where we have exclusive transit rights-of-way. In other locations, they are provided where space is available (they must be wide enough for accessibility). If the King Street Transit Pilot project is made permanent, designs with more permanent and durable materials can be considered. The design would also need to take into account cyclist movements on and adjacent to the platform.*

3. Did you consider running the bike lane behind the TTC stop? Have passengers had any issues with cyclists passing between the TTC stop and the streetcar itself?
    a. *There is no dedicated bike lane on King Street, though the design allows for clear space for cyclists. On streets with dedicated cycling facilities, we have additional signage that reminds cyclists not to pass open doors at transit stops. An additional consideration on King Street is that in many locations, the curb-lane public realm spaces are meant to provide additional continuous space for pedestrians (in addition to the concrete sidewalk), which would be interrupted by this type of facility. We are monitoring the effectiveness of the current design.*

4. What about the small business argument that they need loading? Are there tools to mitigate that?
    a. *Both the Pilot Study and the implementation phase involved extensive consultation with both Business Improvement Areas and individual businesses. Additionally, a curbside activity survey in early 2017 provided valuable data that informed the creation and location of dedicated 24-hour loading zones (possible because there is no longer on-street parking and traffic levels are reduced). Since implementation in November 2017, we have continued to maintain an open dialogue with businesses, and have made adjustments to the design, including additional loading zones where needed.*

5. Was wheelchair accessibility for the streetcar added for the King Street pilot? How do the streetcars board wheelchairs?
    a. *While not all streetcars currently running on King Street are accessible, new low-floor fully accessible streetcars are being put into service as they arrive, with the majority of service now being provided with these vehicles. Transit passengers using wheelchairs board at the second door of the new streetcars, which is facilitated by ramps installed at each stop from the sidewalk to the roadway, and another ramp deployed from the streetcar to the roadway.*

6. How much enforcement was needed to manage the new access restrictions for King Street? How do you enforce prohibition of through traffic?
    a. *Information on the King Street Transit Pilot was distributed prior to implementation through the project website, mailings, public meetings, social media, and brochures distributed to the Police and through Council members' offices. Additionally, there was a dedicated Police presence immediately following implementation, with the first week consisting of education and warnings. Since then, Parking and Traffic Enforcement officers have covered King Street through their regular patrols, with the addition of targeted enforcement informed by volume data received to date.*

7. On King St., how do you prevent MVs from disobeying the signage and continuing straight through intersection (instead of turning right)?
    a. *Violations of this restriction come with a C$110 fine and two demerit points, and there is a continued Police presence on King Street to enforce the regulation. Additionally, motorists can no longer physically pass streetcars stopped at far-side platforms, and at most points in the corridor, since much of the curb lane space has been repurposed.*

8. Since you're not preventing turns full time with barriers, how is compliance when turns are prohibited?
    a. *Left turns are prohibited at signalized intersections in the Pilot area. The prohibition is enforced in the same way as the through prohibition, by Police Traffic Services, and to date, very low volumes of illegally left-turning vehicles have been observed.*

9. Can you go into more detail about the educational campaign for the public before King Street went live? How successful do you feel that educational effort was? What worked, what didn't?
    a. *The education and awareness campaign for King Street was wide-reaching, and awareness is generally high. The project was advertised through mailings, social media, transit agency ads, radio ads, public meetings, the project website, and through Council members' offices, among other means. Awareness certainly increased as the project moved from pilot study to implementation, when we found direct engagement with individual businesses and residents' associations to be most helpful.*

10. What was the outreach process for the project? Was it difficult to "sell" the changes, especially local traffic access and the no left turn ban?
    a. *Many alternative design concepts were considered. The left-turn prohibition generally had high support. While a ban on all private vehicles was at one point considered, it was deemed impracticable for the pilot project, given a significant number of driveways and other access points and the need for deliveries on King Street. We had to emphasize the point that private vehicle traffic continues to be permitted to use King Street as the concept advanced toward implementation. Additionally, on-street parking spaces*

have been added on side streets, parking discount codes have been provided, and many public realm spaces are now being activated with either public art or similar installations, or outdoor cafes where requested by individual businesses.

11. How do you accommodate Uber pick-ups and drop-offs?
    a. *While there are dedicated taxi stands on King Street and nearby streets, and an exemption that permits through movements by taxis from 10 pm to 5 am, there are no special considerations for private transportation companies. They were asked to schedule pick-ups off King Street, though they are permitted local access as all vehicles are, and may use the loading zones for immediate drop-off (not for standing).*

12. Can you share cost of installing 360 cameras and cost of on-going O&M?
    a. *The cameras capturing multimodal counts on King Street cost approximately $220,000 CAD. Ongoing O&M costs of the pilot are being collected.*

Questions for All

1. In the era of "fake news" where empirical data and expert analysis is routinely dismissed in favour of anecdotes and personal opinion, what suggestions do you have to sell the benefits of transit when minds are already seemingly made up? We can see this in Toronto where local businesses have literally given the middle finger to the King Street Pilot.
    a. *John: I don't think we have always done a good job of collecting and sharing the right empirical data to support transit. That is the value of the NACTO report in encouraging more/better use of data.*

       It is true we are in an age that doesn't always respect data and policy analysis. But I hope we are not so corrupted that it is no longer relevant. I still want to believe that good analysis, honestly developed and well communicated, can help us all make better decisions.

    b. *Toronto: We have had continuous dialogue with the Business Improvement Areas and BIAs, and have adjusted the design with additional loading zones and public realm spaces in many locations. Additionally, we have responded to individual critiques of our data with explanations of both the publicly released figures and data collection methods.*

2. We know using bus lanes by reducing driving lanes will lead to good effect. Sometimes tough part is the transition process. How to convince the decision makers to trust that effect? By using simulation model results?
    a. *John: I think having good examples to point to is helpful. Certainly it is best when the examples are local, but even a good relevant example from another city is good. We have certainly used examples of bus lanes and bus rapid transit system design from other cities to help local stakeholders understand what we are proposing. This is one of the values of NACTO, helping cities share their experiences and learn from each other, both in terms of changes that are made and how they are communicated.*

    b. *Toronto: We had to conduct analysis of King Street and surrounding streets to understand what the effect of this new traffic restriction would be, and found that the volumes of traffic could be accommodated in the broader downtown network. Local traffic continues to be permitted to use King*

Street. We are also undertaking a microsimulation modelling exercise that could assist in making a decision on the permanent design (including design alternatives), but the monitoring and evaluation of the project in pilot mode does the heavy-lifting in providing decision makers with the opportunity to understand the impact.

3. What resources do you use for capturing ridership data for each of your transit lines?
    a. *John: We use a combination of fare collection system data and automatic passenger counters (APCs). As we move to more proof-of-payment services and expand the range of ways that customers can pay (mobile tickets, etc.), we are finding that we can rely less on fare collection data to know our ridership. This make APCs essential. Any system/vehicle purchase should include them, and the contracts should include requirements for review and reporting of APC data accuracy by the system vendor.*

        We also use on-board surveys -- these are relatively infrequent, but they provide the clearest picture of the entire rider journey (their demographics, trip purpose, path through the transit network, etc.). There are also newer technologies that allow service providers to understand how customers are using their transit network.

    b. *Toronto: Ridership information was obtained by a combination of standing and riding counts, performed with in-house resources.*