Options for Measuring Progress

Following up on the oversight committee's request to find improved options for measuring progress toward goals discussed in the plan. After staff discussions, three options seem the most promising, though each has their own benefits and limitations.

#1. Mode share, Census (ACS) Journey to Work data.

As presented at the previous meeting, mode data could be aggregated to zones with targets appropriate for the context. Census data, of course, has limitations. It only measures work trips for those 16 years of age and greater, which is significant but not close to a majority of all trips. This means it does not measure travel patterns for those who are retired, children, or otherwise out of the workforce. However, while work trips account for only roughly 20% of all trips, they are still very important because they are taken when the roads are most congested and serve as an anchor for many other trips. Major advantages of Census data are it's readily available, updated annually and is available at no cost to the City.

One of the biggest concerns with Census data is the validity and margin of error at smaller geographies. It was acknowledge while presenting mode split maps there are block groups and tracts that appeared to have significant error associated with them. Margin of error values for individual block group populations of driving alone averaged more than 20%. At the individual tract level, margin of error averaged 12%, and at the city level it was 1.5%. When tracts were aggregated to the draft commute zones presented at the last meeting, the margin of error dropped significantly to a value almost identical to that of the city-wide value. In 2014, approximately 75,000 households in Wisconsin participated in ACS interviews, resulting in a sample size of approximately 2.8% of all households.

A past concern with census journey to work data is that it reflected patterns on the day of the census (April 1), which often would have weather that would discourage walking and bike use. When journey to work migrated to the American Community Survey, it switched to a year round sample.

#2. Mode share, NHTS Add-on survey with oversample

Wisconsin DOT participates in the National Household Travel Survey's Add-on program, which allows for the purchase of local oversampling and delivery of that data. The NHTS is a "travel diary" type survey conducted every 7 years and currently under data collection. Participating households record all trips and associated relevant information, including mode, for all household members 4 years of age and over. Therefore, it provides a much more robust and comprehensive picture of the transportation patterns of all Madison residents.

The biggest drawback to NHTS Add-on data is cost. The cost for the 2016 add-on sample being collected was $225 per survey. The sample size for Dane Co is 982 households, of which 450 are estimated to be within the City of Madison. In order to get a sufficient sample for the City to capture walking, bicycle and transit trips, and different age groups, it would likely require doubling of the City of Madison sample, representing approximately 1,000 of 103,169 households in Madison. This additional sample is estimated to cost $120,000.

The MPO is considering conducting a supplemental survey of Dane County residents using a different instrument and vendor in order to obtain a sufficient sample of bicycle and transit trips. Rather than filling out a weeklong diary, residents would be asked to provide information on trips taken the previous day. The estimated cost of this is $90,000 - $100,000. In the future, it might be possible to modify the

sampling plan (oversampling in the central Madison area) to ensure a sufficient number of bicycle and transit trips. The 2016 survey would be the baseline and a future survey would be needed to measure change. NHTS surveys have been conducted nationally every 7 years since 1965, with the most recent surveys in 2001 and 2009. However, WisDOT does not purchase the add-on sample with every survey. The prior add-on sample was done in 2001. Alternatively, in collaboration with the UW Survey Center, the City may be able to sample populations not covered in the ACS, such as young and old residents not in the workforce, using the NHTS survey form in order to maintain validity. Other survey options, such as an internet-based survey not associated with NHTS may be available at lower costs.

#3. Mode Measurement

A possible third option would measure mode share at select points in the city. Much of the data is already being collected but improvements to collection processes would be necessary. Traffic counts are regularly collected by Traffic Engineering. Metro Transit collects boarding data, and with the introduction of new passenger counters on some buses now has the ability to get alighting data as well, thus allowing calculation of bus occupancy. Currently Metro only has approximately 20% of its fleet outfitted with passenger counters, which would need to be increased. Bike counters, using loop detection or visual technology, are at select locations throughout the city. More counting facilities would need to be added. The only major mode missing is pedestrian counts, which likely would need to be collected manually on major streets and sampled on minor routes. Conceptually, a measurement could occur across a defined geography, such as the isthmus at Blount St including counts on all major parallel routes.

Unlike other options, this measurement approach would capture all transportation modes in Madison, but will not differentiate by age and trip purpose and will include people who live outside Madison. Adding bike counters would be a significant capital cost and may be delayed until other construction activity occurs to reduce costs. Weather could also impact the validity of pedestrian counts if manual counters are used.