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Identifying Non-Auto Mobility Indicators for Los Angeles Metro



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Issue

Cities and transit agencies, including the Los Angeles County Metropolitan Transportation Authority (LA Metro), are interested in better understanding how to shift travel from solo driving to more sustainable modes, including transit, biking, walking and other non-automotive modes. As LA Metro and other agencies collect more data about their systems and riders, many methods exist to measure mode share and the factors that influence travel behavior, including metrics about the transit system itself and the broader mobility and land use context. In this project, the researchers sought to identify indicators that LA Metro and other agencies can use to measure their success in the provision of high-quality, non-auto mobility systems for both existing users, who often rely on these modes, as well as future users who shift from driving.

The team reviewed academic literature on factors that influence travel behavior, interviewed relevant community-based organizations and advocacy groups, and identified best practices from transit agencies nationwide. The selected indicators will help LA Metro achieve their goals of shifting travel behavior toward non-automotive modes through a focus on riders' experiences and perceptions of the system.

Study Approach

The team conducted a literature review of over 60 academic articles and plans created by transit agencies and city

planning departments with the goal of understanding the factors that influence travel behavior and how indicators can assess these factors. Examples and best practices of indicators were identified and used to track progress towards agency goals.

The researchers also interviewed seven local, community-based and political organizations that focus on non-auto mobility and prioritize the lived experiences of transit users, cyclists, and pedestrians.

Research Findings

Based on the analysis, three key indicator areas were identified that best describe the quality of non-automobility systems: transit dependability, transit safety, and multi-modal network quality.

- Transit Dependability includes indicators relevant to the tracking and improving of a transit rider's ability to depend on transit as their primary mode of transportation.
- Transit Safety indicators describe how safety informs and influences transportation decisions. Understanding this area often intersects with issues of identity, including race, class, and gender. Interviews with community-based and policy organizations highlight the importance of understanding the different needs and experiences among Black and brown riders, female riders, and lower-income riders.

Category	Indicator	Measured as:
Dependability	Empirical indicator: Additional Bus Stop Time	Average added time customers wait at a stop for a bus, compared with their scheduled wait time (weighted by boardings)
	Perception indicator: Perceived Wait Time	Average minutes riders perceived their wait to be at a stop/station, relative to the actual headway
Safety	Empirical indicator: Effectiveness of Transit Ambassadors	Number of incidents resolved by unarmed Metro personnel over total incidents
	Perception indicator: Perceived Comfort	Percent of riders who would feel safer or more comfortable from various safety interventions, based on results of a multiple choice survey question answer to "Which of the following will make you feel safer using Metro?"
Multi-modal Network Quality	Empirical indicator: Bicycle Network Buildout (MAT Program Corridors)	Percent of total miles of Metro's MAT Program Cycle 1 Priority Active Transportation Corridors implemented countywide with bicycle facilities
	Empirical indicator: First/Last Mile Bicycle Connectivity	Bicycle network connections as a share of total road network connections, within a 3 mile radius of rail and BRT stations, weighted by station points from Metro's MAT Program First/Last Mile Ranked Locations List
	Perception indicator: Rider-identified Levels of Stress	Number of times first/last-mile corridors/streets are identified as stressful or uncomfortable through a qualitative survey of people at transit stops/stations.

Figure 1. Matrix showing the recommended indicators for each focus area, broken down by empirical and perception categories.

- **Multi-Modal Network Quality** indicators demonstrate how well active transportation users can access their destinations using high-quality, safe infrastructure. Cities and agencies must plan for a more cautious user before the use of active modes, including cycling and micro-mobility, will increase.

For each area, transit agencies should use both empirical indicators that can measure success in these three areas using quantitative data, as well as perception indicators that directly track constituent experiences of the non-auto network through methods such as transit rider surveys. Examples of specific indicators used for LA Metro can be found in Figure 1.

Conclusions

In addition to these indicators, several other recommendations emerged from the project’s engagement process and literature review:

- LA Metro should collect data often enough for indicator progress to be sufficiently measured. While this may be relatively easy for empirical indicators that rely on existing data, some of the perception indicators may

require additional and more frequent surveys and outreach methods.

- Use community engagement to supplement information when existing surveys have limitations on capturing the experiences of all riders. Data transparency and collaboration between community organizations and LA Metro can widen the scope of understanding LA Metro has of its own constituency.
- Additionally, develop avenues for riders, community-based organizations, and other relevant groups to track the agency’s progress independently. This will encourage greater participation in outreach efforts, leading to better service and more efficient allocation of resources, as well as a greater understanding by community-based organizations of where their efforts are most needed.



Mead-Newton, M., Guirguis, P., Murshed, A., Phan, K., Schwartz, E., & Silverstein, B. (2022). Planning Indicators: Non-Auto Mobility (Master’s capstone, UCLA). Retrieved from: <https://escholarship.org/uc/item/4bn8h7n7>.