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Chapter 1 : Roadway Design Manual: Urban Streets

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All Guides Performance Measures Measuring the performance of a given street or network is a rigorous and imperfect process. A street that works extremely well for one set of users may be perilous for another, just as an intersection with no delay at one point may mask significant delay along a corridor. Performance measures must take a multi-disciplinary approach, looking at urban streets and traffic at the macro and the micro scale, through the lens of safety, economy, and design, and inclusive of the goals and behaviors of everyone using the street. The goals of different street users often stand at odds. Bicyclists come into conflict with unloading trucks, pedestrians vie with cars for crossing time at congested intersections, and emergency vehicle response times counter the desires of a community for slow traffic speeds and speed humps. Urban street design must strive to balance these goals, making strategic trade-offs in search of a win-win scenario. The development of holistic performance measures requires a redefinition of the problem that a designer is trying to solve, as well as recognition that streets are places to sit and stay as much as they are conduits for movement. While a multi-modal performance metric such as person delay may improve upon auto-based level of service LOS , delay alone fails to capture the success of a city street outside of its ability to move people through it. Click a number for more information Pedestrians 1 People crave activity and variety at street level. Streets with active storefronts, foot traffic design, and human scale design contribute toward an active and economically vibrant community. While activity is of paramount importance to the pedestrian realm, public safety, sidewalk width adequately spaced and apportioned, protection from rain, and shade from the sun together make the difference between a successful street and a barren one. Bicyclists 2 Bicycle facilities should be direct, safe, intuitive, and cohesive. Bicyclists desire a high degree of connectivity and a system that functions well for cyclists of all skill levels, with minimal detour or delay. Bicyclists benefit from feeling safe and protected from moving traffic. Bikeways that create an effective division from traffic and are well coordinated with the signal timing and intersection design of the traffic network form the basis of a accessible bicycle network. See Cycle Tracks Vehicles 3 Motorists want to get to their destination as quickly and safely as possible with limited friction, interruption, or delay. Vehicles typically benefit from limited access, higher speed roads with limited chance of conflict or surprise. Due to their high speeds and overall mass, drivers feel safest when buffered from other moving vehicles, bicyclists, buses, trucks, and crossing pedestrians. Especially when making decisions at high speeds, motorists need adequate lighting and signage, as well as adequate parking provisions at their destinations. Transit 4 Transit service may be measured by its speed, convenience, reliability, and frequency of service. Trains and buses should permit easy loading and unloading, and be comfortable and not overcrowded. The overall level of access and scope of a transit network should be aligned to actual demand, meeting service needs without sacrificing service quality. Freight 5 Freight operators want to move goods from their origin to their destination as easily, quickly, and conveniently as possible. Trucks benefit from high, but not unsafe speeds, curb access or docks for easy loading and unloading, and overall safety throughout the traffic system. Emergency Vehicles Emergency responders are responsible for attending to crimes, crashes, fires, and other dire scenarios as quickly as possible. They benefit from safety and predictability along their routes, with minimal conflicts with vehicles, bicyclists, or pedestrians, and direct curb access at their destinations. Level of Service Level of service LOS measures the delay experienced by motorists at an intersection or a specific lane at an intersection according to a scale of A least delay through F most delay. LOS is used to communicate the potential impact a new development or street reconfiguration may have at a particular intersection. Based on LOS data, a project can be assessed for the severity of anticipated congestion over a 20â€”30 year timeframe of the development. A Level of Service: As a metric, it is mono-modal, measuring streets not by their economic and social vibrancy, but by their ability to process motor vehicles. LOS is one of many tools that

may be employed to assess traffic conditions in cities, but it should never be the only tool used. Cities should strive to integrate varied and holistic performance measures into their development review process, including measures that frame potential benefits, as well as those that capture risk. Alternate Performance Measures Cities are encouraged to use and adopt a variety of tools to complement or replace LOS as a performance measure. Below are some of the tools that cities are already using to assess conditions on their streets.

Chapter 2 : Intersection Design Elements - National Association of City Transportation Officials

Since there is no absolutely optimum design, this guide is not intended as an inflexible "rule book, " but Typical urban compact. 15 (metric units).

Chapter 3 : Highway Design Manual

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Chapter 4 : Roadway Design Manual: Design Characteristics

through design detail, as well as the wide range of potential applications of roundabout intersections. Roundabout operation and safety performance are particularly sensitive to geometric design elements.

Chapter 5 : Performance Measures - National Association of City Transportation Officials

pavements in an urban roadway network. Closing these Concrete Intersections A Guide for Design and Construction (Either English or metric units). C.