B Transportation Practices and Policy

The Multimodal Transportation Chapter of the Comprehensive Plan references several innovative practices that can help the City achieve its goals in improving transportation infrastructure and services. Many of these practices require further study before the proper implementation strategy can be determined. This includes analyses of new advancements in technology as they occur, as well as policy priorities for the City.

Specific actions in the Comprehensive Plan refer to the Transportation Practices and Policy Appendix for more information. This appendix provides detailed information which should be used as an initial step in implementing the recommendations of the Comprehensive Plan that reference these innovative practices.

Contents

Section 1. Best Practices/Future Trends

BIKESHARE

The central jurisdictions of the region (Washington, D.C. and Arlington County) launched Capital Bikeshare (CaBi) in 2010 with 400 bikes and 50 stations. Since that time the system has expanded to 2,500 bikes at over 400 stations across a number of additional jurisdictions in the region, including Fairfax County. City stakeholders and partners expressed an interest in bringing bikeshare to the City, either expanding CaBi or establishing an independent system serving local travel needs.

CARSHARING

Carsharing has been operational in the region for over a decade. Zipcar is the largest operator in the region at the present time, offering round-trip as well as point-to-point or one-way rental options. Round-trip carsharing requires that users return the vehicle to the same designated spot when finished with their rental period.

One-way carshare allows a user to take the car from one point within a service area and leave it at a different legal parking space within the area. Car2go operates within the District of Columbia and Arlington County offering one-way service. The fee for round-trip carshare is typically on an hourly or daily basis while the cost for a one-way carshare trip is typically calculated on a minute and distance basis.

Peer-to-peer carsharing closely mimics the round-trip carshare service provided by carshare companies but is instead provided by individual auto owners listing their personal car available for use to other "members" via an electronic platform.

Photo Credit (all photos): Nelson\Nygaard

RIDESOURCING

Taxis are a traditional form of ridesourcing where a passenger calls into a central dispatch or hails a clearly branded vehicle to provide a one-way ride. Smartphones and app-based services have enabled the rise of Transportation Network Companies (TNCs) such as Uber and Lyft. TNCs use an online mobile platform to connect passengers to drivers, who use their personal vehicles. With less oversight and regulation, the cost of a TNC ride at present is generally lower than that of a taxi trip.

Image Credit: Lyft

AGGREGATED RIDE SOURCING

The platforms used for ridesourcing have become progressively more sophisticated. Several TNCs now offer riders the option of sharing a ride with others traveling along their general line of travel to further lower trip costs, concurrently increasing travel efficiency with higher vehicle occupancy within the same roadway space. Uber offers "Uber Pool" while Lyft supports "Lyft Line." These aggregated ridesourcing options pool riders, thus lowering travel costs.

Photo Credit: Nelson\Nygaard

PRE-ARRANGED OR DYNAMIC CARPOOLING

Multiple web or smartphone based applications facilitate carpooling both on a regular basis (pre-arranged) or sporadically. Apps like Zimride and RideAmigos match drivers with passengers along a pre-determined route and planned time of day. If desired, some applications permit drivers and riders to be matched across complementary characteristics such as employment or student status, gender, age, and even music preferences. Dynamic carpooling is the electronic equivalent of the traditional Washington region practice of "slugging" where drivers can spontaneously be matched with a rider in real time along their intended route. Under both models, drivers and passengers share costs and take advantage of high occupancy lanes by capitalizing on empty seats in their vehicles.

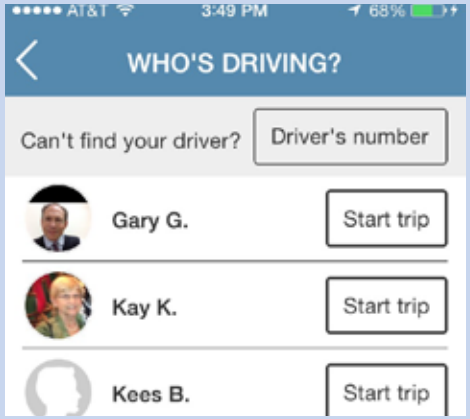

Image Credit: ZimRide

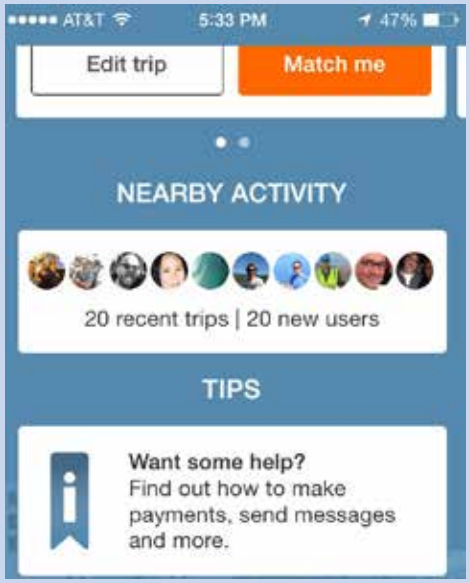

Image Credit: ZimRide

MICROTRANSIT

Microtransit follows the same principle as aggregated ride sourcing, but generally with more added efficiency. It uses online services to dynamically generate on-demand routes along an efficient travel path. Rather than picking each passenger up at their door of origin, passengers may need to walk a short distance to a collector road and arrive at the designated location shortly before the vehicle arrives. By reducing the amount of circling and the dwell time waiting for passengers, microtransit reduces travel time and delay, increases vehicle efficiency, and reduces individual travel costs.

Image Credit: Via

Image Credit: Via

CONNECTED + AUTONOMOUS VEHICLES

Vehicular technology continues to progress at a rapid rate, and the time is soon coming when human drivers may no longer be needed to operate passenger vehicles. Connected vehicles have the ability to communicate with one another and with the surrounding infrastructure, provided the infrastructure has "smart" capabilities. Autonomous Vehicles can operate independently by observing cues in the built environment. Future vehicles will likely utilize the capabilities of both connected and autonomous technologies. Such vehicles may have the ability to dramatically increase the efficiency and capacity of existing roadway facilities and decrease the need to operate and store (e.g. park) private vehicles. Thus, autonomous vehicles, with the right policy guidance, may reduce vehicle ownership, reduce the need for long-term parking, and increase accessibility and mobility across the economic spectrum.

Image Credit: Bosch

Photo Credit: EasyMile

Section 2. Smart Infrastructure + Real-Time Information

Improved technology in both Intelligent Transportation Systems (ITS) and better information for users provides great promise for more efficiency in mobility systems and greater predictability and control for users. The following system elements have been implemented elsewhere in the greater Washington D.C. area. Some elements may be appropriate for managing traffic and improving trip making in the City.

SMART SIGNALS

These signals are connected to a central control center and may be adjusted either according to a programmed algorithm or by central control. Smart signals can adjust to changing demands in the roadway network and may be used to facilitate the advancement of transit vehicles (transit signal priority or TSP), passively detect pedestrians and bicyclists, and/or meter traffic volumes to even out the flow of traffic and mitigate congestion, improving the operation and efficiency of multiple modes.

DYNAMIC SIGNAGE

Dynamic signage includes variable message boards and variable speed signs such as those found along I-66, and also includes urban signage indicating the location and availability of parking spaces. These signs provide real-time information to motorists without requiring the use of a smartphone or app. Dynamic signage at transit stops can indicate the next bus anticipated to arrive and the time of arrival. Dynamic signage can help to better distribute traffic loads, minimize unnecessary circling of vehicles searching for parking, and increase user confidence with regard to transit. Dynamic signage can reduce traffic volumes by 10% to 30%, particularly in central business areas.

DEMAND-RESPONSIVE PRICING

Applying basic economic principles to encourage more efficient use of the transportation system, demand-responsive pricing uses real time and/or historical information on parking or travel demand to optimize supply and demand. When demand is high and available supply (or capacity) is low, mobility services are priced higher. During periods of low demand, the cost of travel or parking is correspondingly low. Such strategies reduce congestion, increase efficiency in the system, and ensure the availability of reliable capacity (for a price) for essential trips. When coupled with lower cost, higher capacity travel options such as transit, ridesharing/ride sourcing, and safe non-motorized options, demand-responsive pricing can appropriately meet travel needs without necessarily resulting in higher overall transportation costs to users.

TRAVEL PLANNING APPS

The best travel planning apps integrate a number of different travel options including driving (in a personal vehicle or ridesource vehicle), transit, bicycle, walking and/or a combination of multiple modes. These apps provide users with real time information on both travel time and cost, including the probability of travel delay, while some also provide information on personal and environmental health benefits or impacts of various choices. Smart applications link directly to other applications to help the traveler arrange the mode of travel they selected, such as hailing an Uber or reserving a carshare vehicle. Travel apps and mobility service payment systems are evolving such that in the near future, travelers will also be able to pay for their transit trip, bikeshare use, or high-occupancy tolls all from a single point of transaction. This should help to even the playing field of awareness and convenience across all travel options.

Section 3. Transportation Demand Management

Cities have traditionally approached transportation from the supply side of the equation, and this is a critical role for cities to play. Cities have significant control over how much vehicle capacity, bicycle accommodation, or parking is provided in their communities. But some economists advise cities that they must also consider and manage the demand side of the equation as well. Managing demand requires a more nuanced approach, but is, in many ways, more effective than supply-side management alone.

Transportation Demand Management (TDM) provides information and incentives to allow travelers to make the best choices for themselves. It is also a way for jurisdictions to make the most of transportation systems they have already built and optimize investments they have made by encouraging the use of excess capacity before adding additional capacity. Excess capacity exists in the form of empty seats on buses or in cars. It exists on sidewalks, trails, and bike lanes. It exists in the 20 hours of the day outside of the peak hours of traffic congestion. And it exists in the parking spaces that remain empty when the vehicle they are intended for is at another destination.

TDM serves cities, but it also brings benefit to users as well – often saving money on transportation costs, improving reliability and predictability in their travel, giving greater freedom of choice, lowering stress, and perhaps even improving personal health.

Section 4. Pedestrian Accessibility Policy

Best Practice

The best pedestrian-supportive infrastructure policies are applicable to the entire community and focus on safety and connectivity. Best practice policies are compliant with all applicable state and federal regulations, including the Americans with Disabilities Act (ADA) ,and establish a methodology for prioritization and performance evaluation.

The following are potential policies to improve pedestrian-supportive infrastructure.

- Prioritize walking connections to transit stops, schools and parks. Implement first-last mile walking connection to transit and prioritize access to transit stops.
- Support projects that improve pedestrian connectivity.
- Improve pedestrian access to destination areas in the City.
- Improve pedestrian routes that connect students to schools.
- Maintain a sidewalk inventory.
- Establish a methodology for project prioritization and performance evaluation.
- Improve pedestrian access across major roadways that create barriers to connecting the network. Comply with all state and federal regulations including the ADA.

Policy Recommendation

The following is a draft recommended policy for the City.

In order to promote safety and provide for the most vulnerable users in the transportation system – children, seniors, and persons with disabilities – it is the policy objective of the City that all streets have at least one sidewalk on both new and existing streets of all street types.

- All new streets should provide sidewalks on both sides of the street irrespective of anticipated traffic volumes, unless explicitly designed as a shared street.
- Sidewalks should be considered with every major maintenance, restoration, or street reconstruction project. Sidewalks may be constructed independent of other street projects.
- Streets with moderate to high vehicle volumes (5,000 or more vehicles per day) should have sidewalks on both sides of the street. Moderate volume streets should have a continuous sidewalk at least along one side. Local streets (less than 5,000 vehicles per day) should have a sidewalk on at least one side of the street, unless specifically designed as a shared street.
- Sidewalks should be a minimum of five feet wide.
- The sidewalk network should be continuous and connected. Curb ramps must be provided at street crossings.

Section 5. Complete Streets Policy

Best Practice

A Complete Streets policy should include a community's vision for transportation, account for many types of uses and community needs, and allow for flexible implementation.

The following are potential policies by which to implement Complete Streets principles:

- Approach every planned transportation improvement as an opportunity to apply the Complete Streets principles.
- Apply Complete Streets policies to all public and private projects and developments that impact the right-of-way.
- Allow Complete Streets elements to be phased over time.
- Identify regional, state, and federal funding for Complete Streets improvements.
- Collaborate and coordinate between departments and transportation agencies to efficiently utilize funds.
- Identify performance measures and report progress annually.
- Maintain an inventory of bicycle and pedestrian infrastructure to identify gaps.
- Identify and prioritize projects based on infrastructure needs.
- Train staff and decision makers on the technical content and best practices of Complete Streets principles.

Policy Recommendation

The City will approach all planned transportation improvements and all development projects with right-of-way impacts as opportunities to advance the value and objective of safety and Complete Streets. It shall be the policy of the city that:

- Every street safely accommodate all users.
- Any street subject to major maintenance, rehabilitation or reconstruction will provide safe accommodation for all users of all abilities.
- The means of accommodation will be appropriate to the street context and developed in consultation with community stakeholders.
- The city will pursue regional, state, and federal funding opportunities to support Complete Streets improvements.
- City agencies and departments will collaborate and coordinate with one another and adjacent jurisdictions to apply Complete Streets principles and provide continuous networks.
- Progress on Complete Streets will be measured in concert with the adopted measures of the City of Fairfax Multimodal Transportation Plan.