Shared Use Mobility Overview

The Future of Urban Mobility

Report Version: 1

Prepared for:

DMC Transportation & Infrastructure Program
City of Rochester, MN

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DMC Project No. Rochester J8618-J8622 Parking/TMA Study

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Shared Mobility Summit 2016 and the Future of Urban Mobility

Shared Mobility Summit 2016 and the Future of Urban Mobility

Introduction

Anticipating that Shared Mobility would be an important element in the Parking and TMA study for the Destination Medical Center project, I petitioned Kimley-Horn to allow me to attend the "Shared Mobility Summit" conference held in Chicago this past October. This was the second year for the conference, but my first time attending this new offering.

The Parking and TMA team will be developing a more robust report on this topic in the coming months. This submittal documents my notes from attending this interesting conference with the primary focus being how these emerging shared mobility strategies might be incorporated into our DMC parking and transportation demand management program development.

Conference Overview

The Shared Mobility Summit was billed as a platform to "discuss the latest developments in carsharing, bikesharing, ridesourcing, microtransit and an opportunity to network with the newest companies, the boldest cities and the nation's leading mobility experts and change-makers."

The conference was attended by an interesting assortment of federal, state and local policy leaders, transportation agencies, transportation network companies, transportation entrepreneurs/startups, auto manufactures, equipment vendors and even a few "parking wonks" who are beginning to make the transition from parking focused programs to broader mobility or access management platforms.

Conference Themes

There were several larger themes that were intertwined among a range of session topics. Below are a few of these themes that apply to broader transportation policy goals and could also be applied to the parking industry.

People Centric Planning and Design

There was positive recognition that beyond all the technical aspects of the conference that ultimately we need to remember that all the programs, technology and innovation needs to retain a "people focus". Transportation and parking are support systems that enable other activities. This applies to many areas such as land use, technology, smart infrastructure and policy development.

Better and Different Data Platforms and Analytics

There was a strong and recurring focus on the need for better and different types of data (data that goes beyond traditional metrics such as vehicles miles travelled (VMT) and planning for additional roadway capacity and places more emphasis on larger context issues such as transportation equity, place making, quality of life, sustainability and changing consumer preferences). This new focus on "problem identification and desired outcomes that embrace larger community development societal goals is also reflected in programs such as the U.S. Department of Transportation's "Smart City" initiative.

Transportation as An Element of Social Equity Solutions

Another important theme that emerged in many sessions was a sensitivity to and understanding of the importance of "social equity" issues as it relates to transportation. This issue has tentacles that impact job creation, social justice and an embrace of diversity in many forms and environments. This was sometimes expressed in terms of "reframing transportation priorities" or "ensuring that technology based transportation options don't create equity barriers". The goal of promoting equity was powerfully summarized by the City of Pittsburgh in the phrase, "If it's not for all, it's not for us". Transportation equity issues were another link back to the "focus on people" theme mentioned above.

Multi-Modal Systems Integration

Another related theme was the promotion of multi-modal systems integration and the creation of a comprehensive and seamless customer experience that promotes all forms of transportation as the best way to

improve community access overall. This theme harkens back to the "connected traveler" concept that promotes dissemination of information on all modes via the new and growing universe of communications options available today.

Shared Mobility – A Complement or Competitor to Public Transit?

There was much discussion related to the whether the emergence of shared mobility strategies was a threat or a complement to public transit systems. While there were a number of issues and opinions on this topic, the overwhelming opinion of the experts and practitioners in the audience was that shared mobility was very much a complement to public transit systems, which is still most cost effective means to move high volumes of commuters in limited urban street networks.

Carpe Diem!

Finally, there was a real "sense of urgency" that now is the time that we need to embrace the change that is not coming, but that is ALREADY HERE to help solve many of the larger issues that are emerging as our urban environments continue to evolve and densify. This, combined with a recognition that traditional approaches to transportation planning (more focused on vehicles and roads than smart mobility options) will not help us solve the larger issues of equitable housing, job creation/retention, public safety, environmental sustainability and community resiliency. This theme of "how we transform our cities and other key activity centers for the public good and identifying the role of this "new shared mobility reality" in that equation', was infused throughout a wide range of technical sessions.

Mobility as A Service

Another topic area that I have been tracking over the past couple of years is the concept of "multi-modal mobility as a service". This is in contrast to mobility as a product that one might own. This fascinating area brings together many of the elements and themes discussed above embraces and leverages our new abilities to easily access a range of combined mobility services via our smartphones and increasingly our vehicles and other devices. A listing of the categories of programs, services and innovations that make us this new "eco-system of shared mobility options" along with examples of each is provided later in this article. Integrated mobility service platforms are emerging as a smart alternative to vehicle ownership in a rapidly urbanizing world. Mobility as a service offers new and easy ways to access a wide range of transportation options that can be tailored to better meet customer needs

and also address a range of issues related the fact that soon nearly two thirds of the world's population will be living in "megacities".

The future of urban public transport lies in mobility systems that will provide bicycles, cars and other mobility services on demand. Most mobility assets will be "shared" instead of "owned" by users (shared-use mobility). Convenient and reliable lifestyle services will be offered to "connected" travelers who will be able to easily access these combined mobility services via their smartphones and other devices. These services will become viable alternatives to car ownership as they are more tailored to customer needs and will ultimately be more cost effective, environmentally sustainable and will reflect the lifestyle choices of a next generation. However, as was noted often at the conference, we must be sensitive to the fact that not everyone can afford a smart phone and related social equity issues.

Combined mobility services take the concept of shared-use to a new level, recognizing that the desires for flexibility and efficiency which are driving consumers to shared-use mobility solutions are further advanced when those solutions can be offered in an integrated platform. For those communities, institutions and providers of mobility solutions that make the transition to integrated mobility services, these developments offer a real opportunity to deliver sustainable growth, reduced congestion and improved access over the next decades.

The Expanding Shared Mobility 'Eco-System'

I recently came across a document that illustrated how far we have come in the evolution of shared mobility resources and options. This "eco-system map" was created for the Silicon Valley "Mobility as a Service" project, where mobility aggregators are beginning to integrate various programs and services.

The menu of shared mobility options below identified the following major categories related to mobility as a service. Examples for each category are provided for clarity.

- Enterprise Commute Trip Reduction
    - Enterprise Commute Trip Reduction leverages technology focused on managing mobile devices, wireless networks, and other mobile computing services in a mobility management and commute trip reduction context.
    - (Examples: Luum, Ride Amigos, etc.)

- Mobility Aggregators
    - **Mobility aggregators are** public transit apps and mapping services developed by several companies focusing on trip planning, live arrival and departure times, up-to-date line schedules, local station maps, service alerts, and advisories that may affect one's current trip.
        - (Examples: Moovit, Moovel, Urban Engines, etc.)
- Public Transit
    - Traditional public transportation systems
        - (Examples: Rochester Public Transit)
- Private Sector Transit
    - Entrepreneurial private sector transit options are emerging when traditional transit systems cannot meet all the local demand. Startups such as "Chariot" are providing new customized commute options typically using 14-passenger vans. Specific routes are requested by commuters via "crowdsourced". When a critical mass in a neighborhood is reached by commuters reserving their first "Chariot Pass",a new route is launched within days.
        - (Examples: Bridj. Chariot, Go Carma, Via, etc.)
- Rideshare w/in 10 min
    - Similar to normal transportation network providers such as Uber or Lyft, these services allow you to share the ride and the cost while reducing the number of vehicles on the rode.
        - (Examples: Lyft Carpool, UberPool, Ford Dynamic Social Shuttle, etc.)
- Rideshare w/in 24 hours
    - Ride-sharing services that make carpooling convenient, social and productive by giving riders flexibility and choice in finding carpooling partners, a chance to meet others with similar interests, while reducing the time and costs of driving to work.
        - (Examples: Carma, HOVee Carzac, etc.)

- Taxi-like services
    - Traditional taxi services and the newer generations of app-based ride hailing services such as Uber, Lyft, Juno, etc.
        - (Examples: Lyft, Uber, Juno, Sidecar, etc.)
- Carshare
    - Carsharing is a model of car rental where people rent cars for short periods of time, often by the hour. They are attractive to customers who make only occasional use of a vehicle, as well as others who would like occasional access to a vehicle of a different type than they use day-to-day. The organization renting the cars may be a commercial business or the users may be organized as a company, public agency, cooperative, or ad hoc grouping.
        - (Examples: Car2Go, Zipcar, Enterprise Car Share, etc.)
- P2P Carshare
    - Peer-to-peer carsharing (also known as person-to-person carsharing and peer-to-peer car rental) is the process whereby existing car owners make their vehicles available for others to rent for short periods of time.
    - Peer-to-peer carsharing is a form of person-to-person lending or collaborative consumption, as part of the sharing economy. The business model is closely aligned with traditional car clubs such as Streetcar or Zipcar, but replaces a typical fleet with a 'virtual' fleet made up of vehicles from participating owners. With peer-to-peer carsharing, participating car owners are able to charge a fee to rent out their vehicles when they are not using them. Participating renters can access nearby and affordable vehicles and pay only for the time they need to use them
        - (Examples: Getaround, RelayRides, Ford Car Swap, etc.)
- Bikeshare
    - A bicycle-sharing system or public bicycle system is a service in which bicycles are made available for shared use to individuals on a very short term basis. Bike share programs

allow people to borrow a bike from point "A" and return it at point "B". Many bike-share systems offer subscriptions that make the first 30–45 minutes of use either free or very inexpensive, encouraging use as transportation. This allows each bike to serve several users per day. In most bike-share cities, casual riding over several hours or days is better served by bicycle rental than by bike-share. For many systems, smartphone mapping apps show nearby stations with available bikes and open docks.

        - (Examples: Motivate, DecoBike, Bcycle, NextBike, etc.)

- Personal Electric Transport
    - An electric bicycle, also known as an e-bike or booster bike, is a bicycle with an integrated electric motor which can be used for propulsion. There are a great variety of e-bikes available worldwide, from e-bikes that only have a small motor to assist the rider's pedal-power (i.e., pedelecs) to somewhat more powerful e-bikes which tend closer to moped-style functionality: all, however, retain the ability to be pedaled by the rider and are therefore not electric motorcycles.
        - (Examples: Enzo foldable ebike, GenZe electric bikes, Scoot (heavy scooter rental, etc.)
- Vanpooling
    - Vanpools are an element of a transit system that allow groups of people to share the ride similar to a carpool, but on a larger scale with concurrent savings in fuel and vehicle operating costs. Vanpools have a lower operating and capital cost than most transit vehicles in the United States, but due to their relatively low capacity, vanpools often require subsidies comparable to conventional bus service.
        - (Examples: Enterprise, Vride, etc.)
- Commute Mode Detection Technologies
    - Uses GPS data from mobile devices to document commuter modal choices including origin and destination data.
        - (Examples: Strava, MapMyRide, Moves, etc.)

- Smartphone Transit Payment
    - Incorporates transit payments into mobile devices (typically via mobile apps to make paying for commute options easier.
        - (Examples: Passport, GlobeSherpa, Masabi, etc.)
- Smartphone Parking
    - Incorporates parking payments into mobile devices (typically via mobile apps to make paying for parking easier.
    - (Examples: ParkMe, Parkmobile, Pay-by-Phone, etc.)
- Miscellaneous Apps
    - There are a variety of Apps now available to help commuters better understand their commute options and even assist in commuter trip planning.
        - (Examples: City Mapper, Transitscreen, Modeify – TDM Trip Planner, etc.)
- Commuter Benefits
    - Tax-free commuter benefits, also known as qualified transportation fringe benefits, are employer provided voluntary benefit programs that allow employees to reduce their monthly commuting expenses for transit, vanpooling, bicycling, and work-related parking costs. The benefit is a federal tax benefit authorized under the Internal Revenue Code Section 132(a), Several companies are emerging to help larger institutions work with commuters to maximize these potential benefits and promote alternative modes.
        - (Examples: Commuter Check Direct, Commuter Benefits, Wageworks, etc.)
- Robotaxi
    - An autonomous car capable of sensing its environment and navigating without human input used as a taxi-like service.
        - (Uber w Robot Driver)
- Personal Rapid Transit
    - Personal rapid transit (PRT), also referred to as podcars, is a public transport mode featuring small automated vehicles

operating on a network of specially built guideways. PRT is a type of automated guideway transit (AGT), a class of system which also includes larger vehicles all the way to small subway systems.

  - PRT vehicles are sized for individual or small group travel, typically carrying no more than 3 to 6 passengers per vehicle. Guideways are arranged in a network topology, with all stations located on sidings, and with frequent merge/diverge points. This allows for nonstop, point-to-point travel, bypassing all intermediate stations. The point-to-point service has been compared to a taxi or a horizontal lift (elevator).
  - Numerous PRT systems have been proposed but most have not been implemented.
    - (Examples: 2getthere, Ultra Global (London Heathrow), etc.)

- Niche ride match
  - Niche ride matching services such as Zimride connects inter-city drivers and passengers through social networking.
    - (Examples: Zimride, Otto (eRide Share), etc.)
- SOV Apps
  - Single Occupant Vehicle Apps are community-based traffic and navigation apps that can connect drivers in a local area to share real-time traffic and road info, saving everyone time and gas money on their daily commute.
    - (Examples: WAZE social traffic, Twist for Rendezvous, etc.)
- Niche Transport
  - A variety of specialized transport options which could include water taxis, pedicabs, etc. Another example is HopSkipDrive a ride service for kids designed to help you take some of the stress out of your family's busy schedule.
    - (Examples: Boost by Benz, Shuddle, Hop/Skip/Drive, etc.)

As parking and TDM programs merge to offer more comprehensive tapestries of "access and mobility management strategies", this summary of shared mobility offerings illustrates the scope, variety and evolution of this emerging area of our industry that we are now calling "shared mobility".

Looking at this document from another perspective reveals another dimension. Beyond the specific practices, there are broader categories (mobile communications, data aggregation, commute mode detection, personal transport, active transportation, private sector transit, commuter benefits, etc.) that are driving the innovation of new approaches. In some cases, it is the intersections of these broader categories that are generating new synergistic applications and approaches that will have the potential to be both transformative and disruptive to our industry.

The promise and potential of these evolving products, applications and strategies to improve access and mobility while simultaneously addressing other important issues such as congestion mitigation, greenhouse gas emission reduction and the promotion of a more sustainable transportation network is incredibly exciting.

2017 CPPA CONFERENCE AND EXPO | NOV. 15-17, 2017

SHARED MOBILITY EXPLOSION!

Appendix 11b

California Public Parking Association

PRESENTED BY

Dennis Burns, CAPP
Kimley-Horn

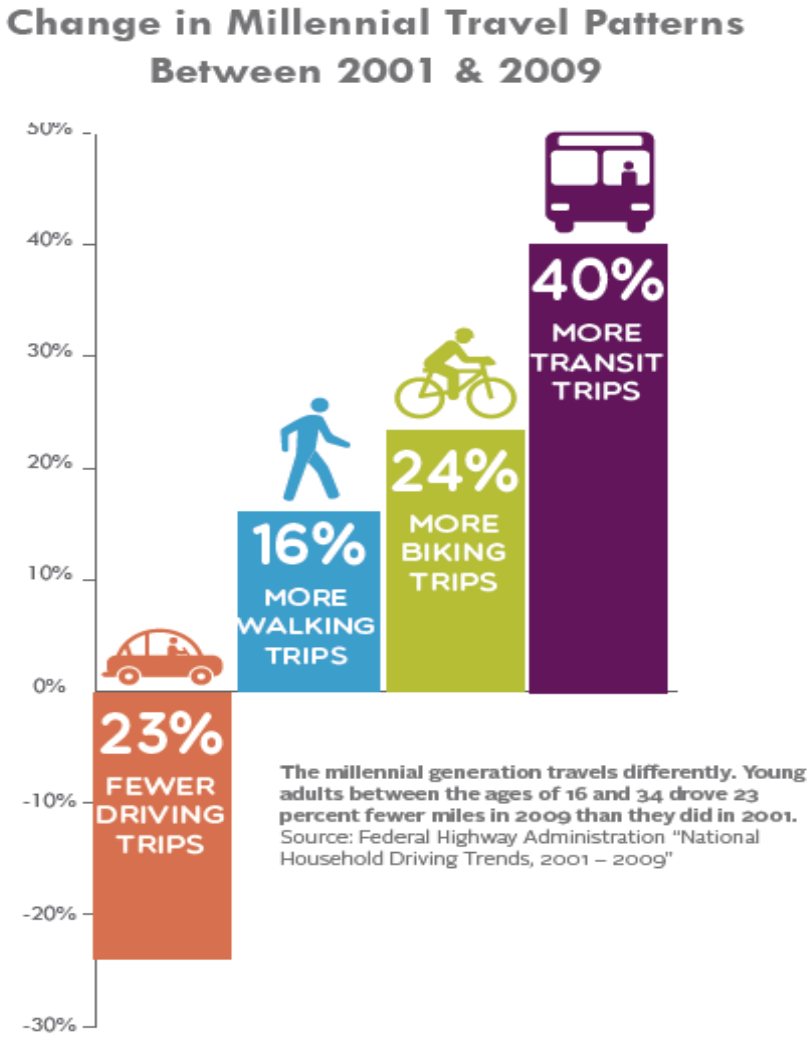
William Reynolds, P.E.
Kimley-Horn

Introduction

The worlds of parking, TDM and transportation are merging together to form the discipline sometimes referred to as “integrated access management" or “mobility management”.

Introduction

Driven by innovation in the technology and mobile communications areas and combined with social trends such as the "sharing economy", a new specialty area is emerging that is sometimes referred to as "shared mobility resources".



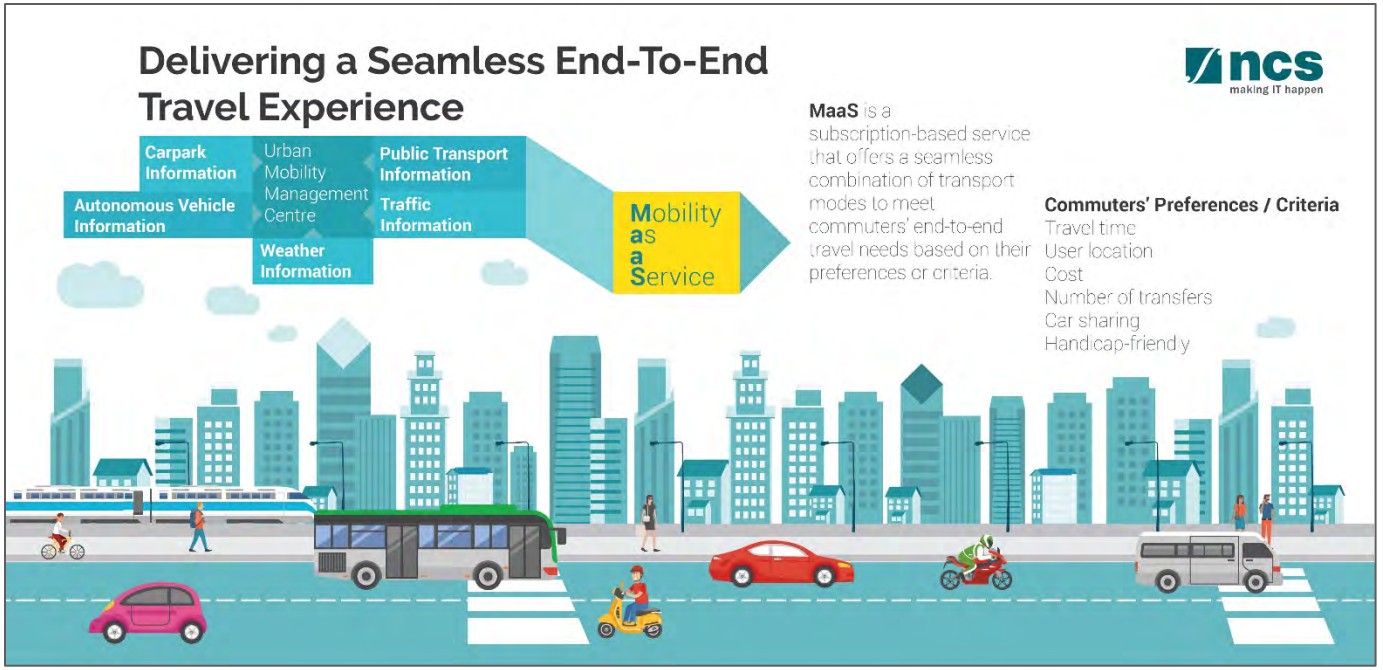
Introduction

This presentation will provide an overview of shared mobility by discussing the growth and diversification of shared mobility resources, tools and strategies and then give a brief overview of some of the programs, vendors and tools.

luum™ moovit BRIDJ lyft rideamigos chariot mass transit reinvented UBER moovel urban engines carzac share your commute juno

Presentation Overview

Driven by innovation in technology and mobile communications and combined with social trends such as the "sharing economy", a new specialty area is emerging that is sometimes referred to as "shared mobility resources“ or “Mobility as a Service”.



SHARED MOBILITY EXPLOSION!

Presentation Overview

In addition to providing an overview of shared mobility resources, tools and strategies, this presentation will also present a "mini-case study" of how these elements are being considered within the context of Boise's new parking and mobility management strategic plan.

SHARED MOBILITY CATEGORIES

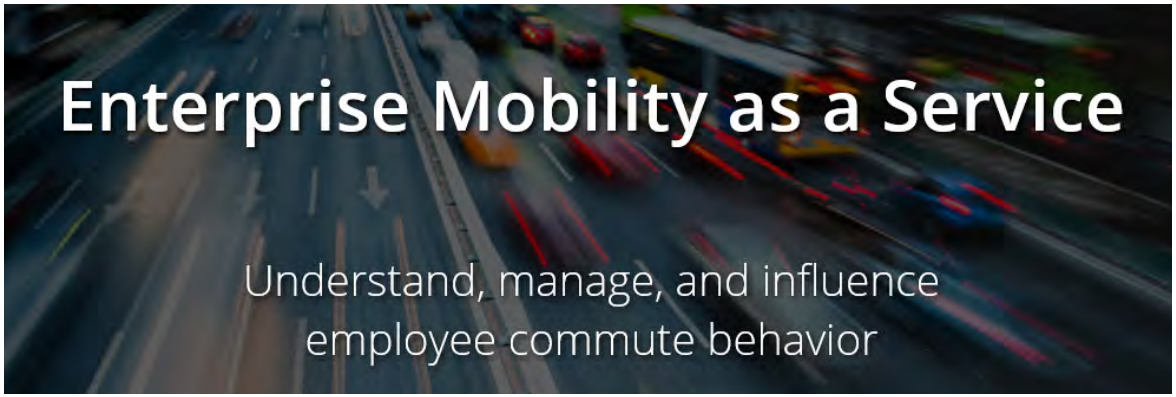
Shared Mobility Categories

- Enterprise Commute Trip Reduction
- Mobility Aggregators
- Private Sector Transit
- Rideshare w/in 10 min
- Rideshare w/in 24 hours
- Taxi-like services
- Carshare
- P2P Carshare
- Bikeshare
- Personal Electric Transport
- Vanpooling
- Commute Mode Detection Technologies
- Smartphone Transit Payment
- Smartphone Parking
- Miscellaneous Apps
- Commuter Benefits
- Personal Rapid Transit
- Niche ride match
- SOV Apps

SHARED MOBILITY EXAMPLES BY CATEGORY

Enterprise Commute Trip Reduction

- LUUM



Drive smart business decisions

Valuable Data Insights

Commute Mode Split

Environmental Impact

Program Effectiveness

Optimize your transportation network

Systems Integration

Parking Wizardry

Shuttle Data Services

Rideshare Solutions

Motivate commute behavior change

Employee Commute Hub

Incentives & Challenges

Multi-modal Trip Logging

Tailored Commute Resources

Empower your transportation team

Comprehensive Tools

Automated Enrollment

Targeted Communications

Transit Card Management

Save your team time and money

Enterprise Integration

HR Systems

Single Sign-On

Payroll

Luum

SHARED MOBILITY EXPLOSION!

Enterprise Commute Trip Reduction

- Ride Amigos

Transforming Urban Transportation

PROGRAMS

- Corporate Ridesharing
- Employee Commuter Programs
- Employee Carpool Programs
- Employer Transportation Benefits
- Enterprise Commuter Programs
- Enterprise Vanpools
- Reducing Parking Costs
- University Vanpools

COMMUTER TOOLS

- Commuter Services
- Commuter Management Apps
- Commuter Management Platform
- Enterprise Rideshare Solutions

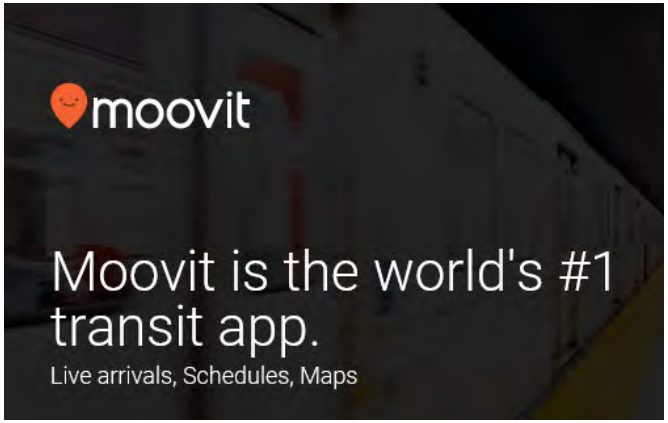
rideamigos

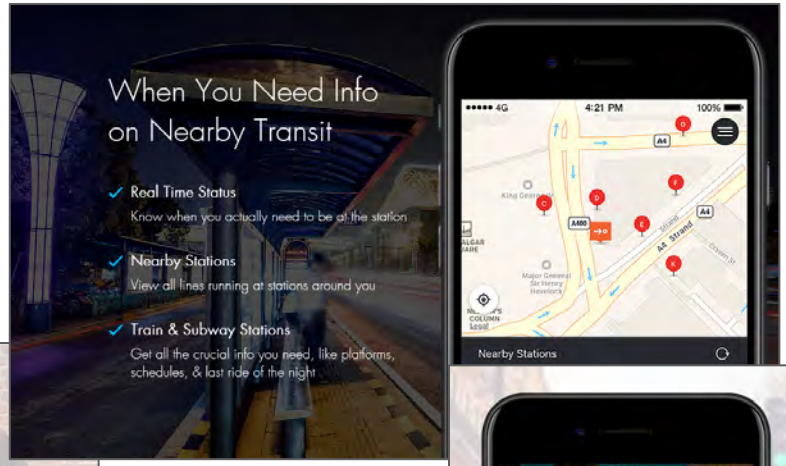
- Government Rideshare Solutions
- Transportation Demand Management Software
- University & School Transportation
- University Rideshare Solutions

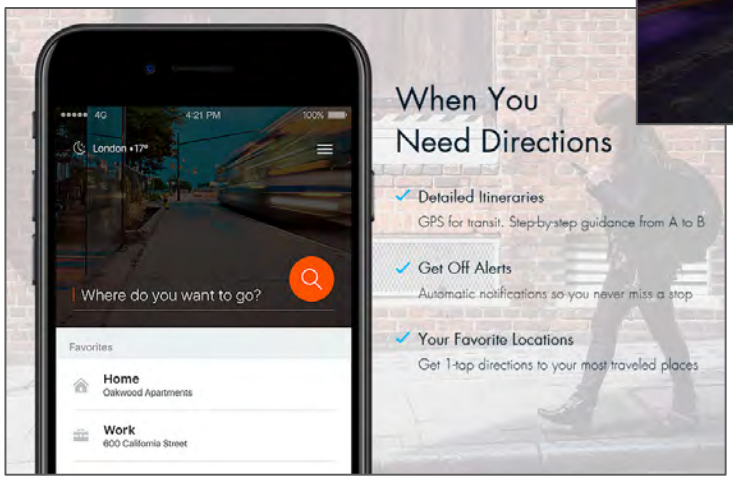
SHARED MOBILITY EXPLOSION!

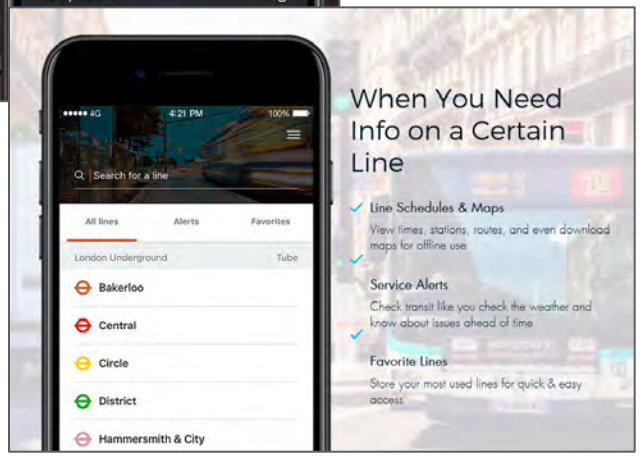
Mobility Aggregators

- Moovit





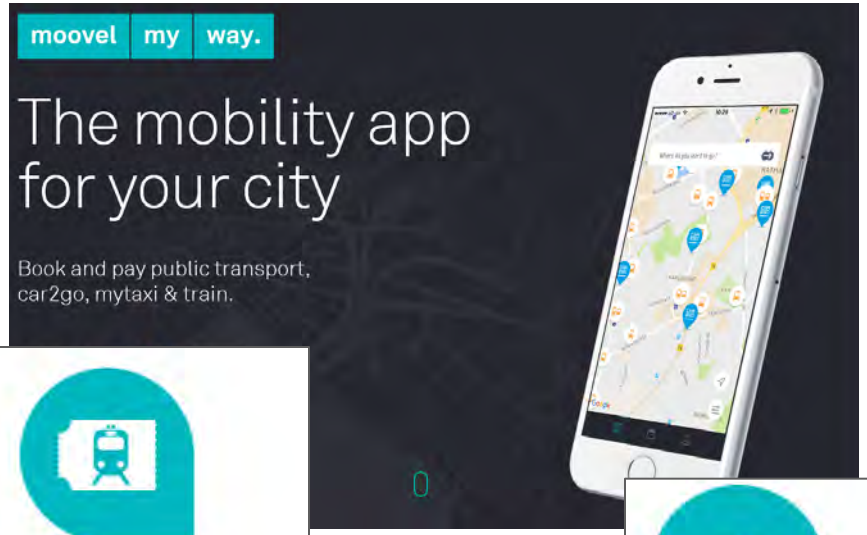


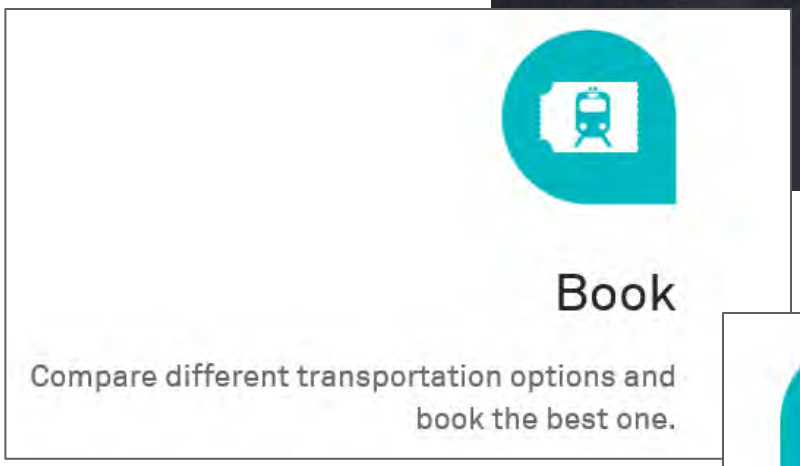


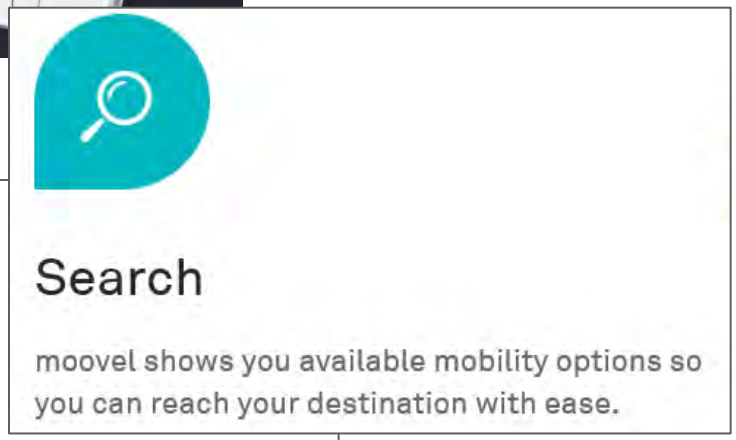
SHARED MOBILITY EXPLOSION!

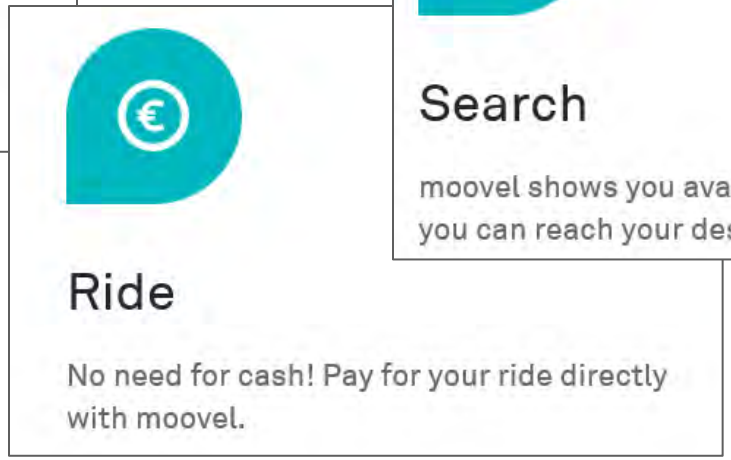
Mobility Aggregators

- Moovel









SHARED MOBILITY EXPLOSION!

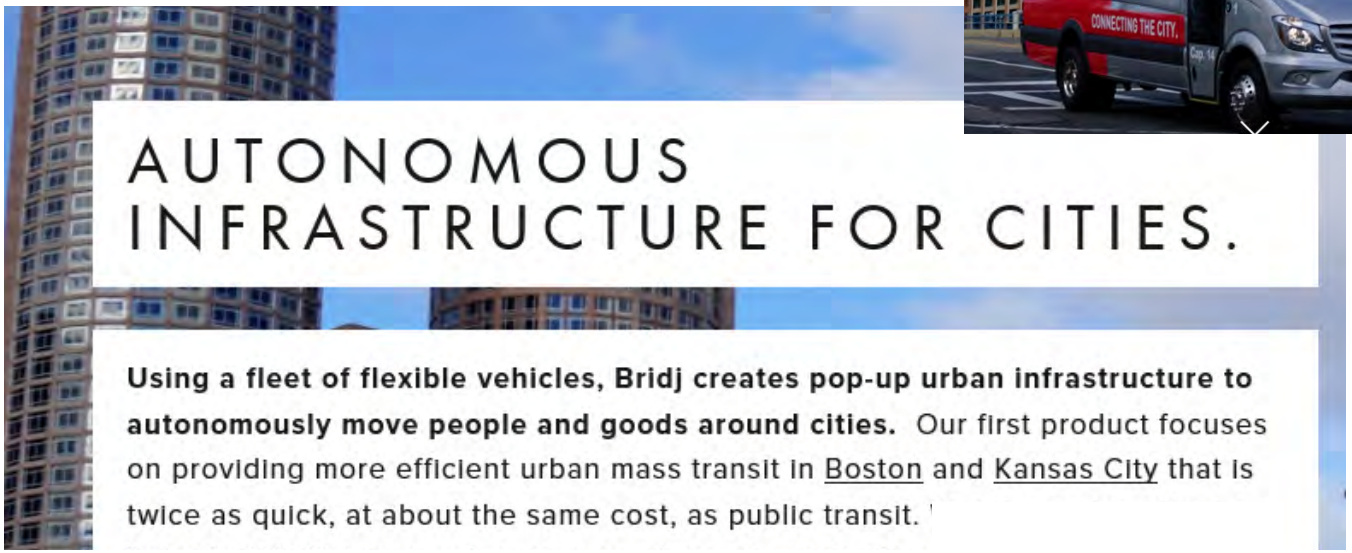
Mobility Aggregators

urban engines

- **Urban Engines** is a data analytics startup based in Silicon Valley, acquired by Google in September 2016, that uses data to give insight into cities and how people move around in them. The company's goal is to improve mobility in cities.
- Urban Engines has developed a new type of database, which maps objects in motion, called a "Space/Time Engine"
- The company also released a commuter app with "mixed-mode routing" which evaluates different modes of transportation – walking, driving, public transit, and Uber – to give users the quickest routes.

Private Sector Transit

BRIDJ

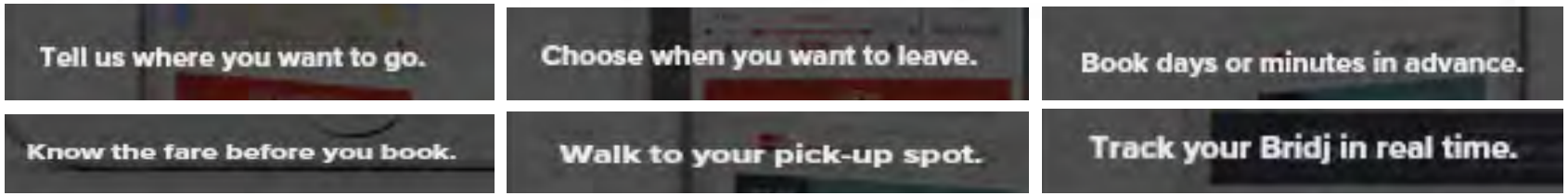


AUTONOMOUS INFRASTRUCTURE FOR CITIES.

Using a fleet of flexible vehicles, Bridj creates pop-up urban infrastructure to autonomously move people and goods around cities. Our first product focuses on providing more efficient urban mass transit in Boston and Kansas City that is twice as quick, at about the same cost, as public transit.

HOW IT WORKS.

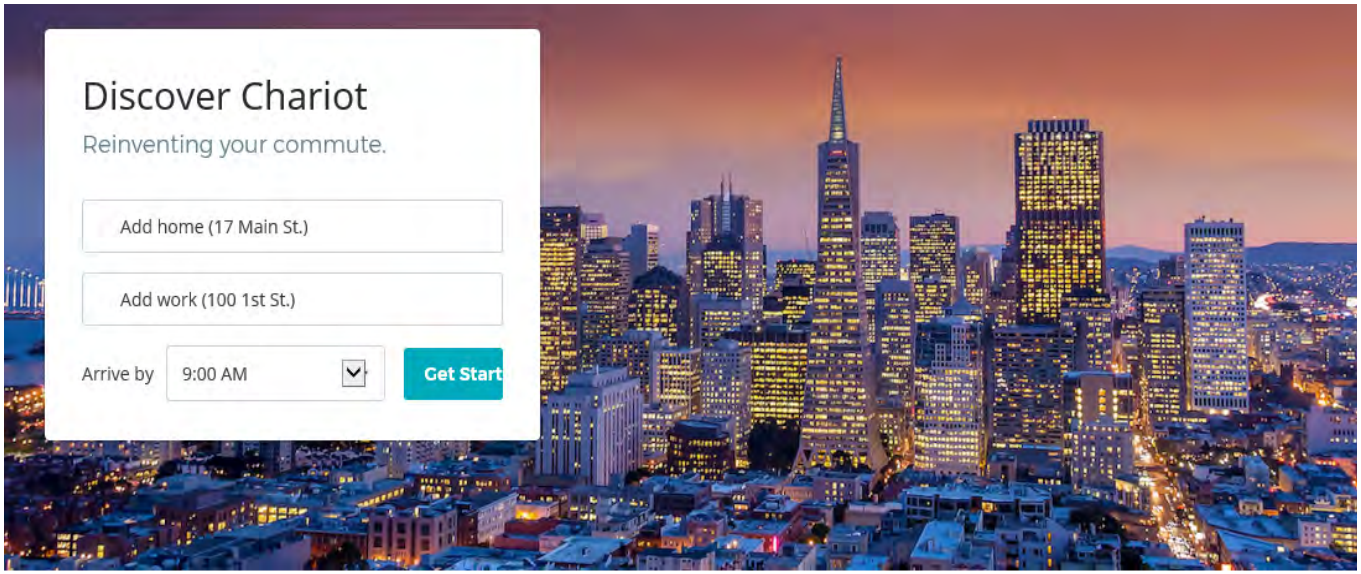
Drop two pins, select the trip that meets your needs, purchase in-app and walk to your tailored Bridj pick-up location. We optimize pick-ups, drop-offs, and routing based on demand meaning a 40-60% more efficient trip (on average) than traditional transit at a $2 to $6 price point.



SHARED MOBILITY EXPLOSION!

Private Sector Transit

- Chariot



The New Affordable Way To Commute!

We also have monthly passes, which are a great deal for regular riders. The $119/mo All-Access Pass allows for unlimited number of rides on our growing network of routes at all times. That's less than **$3 per ride** when using it to and from work every day, and that's before a ~40% savings if you pay with commuter benefits

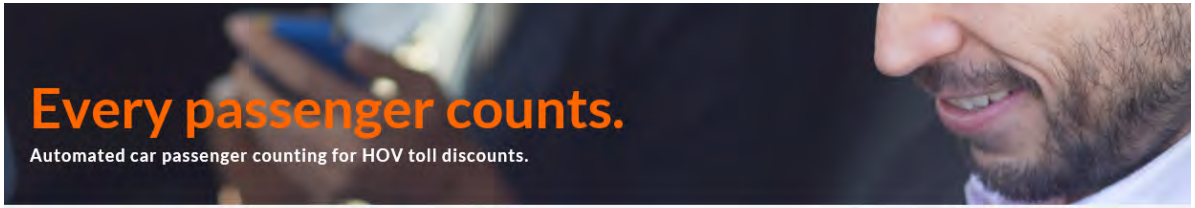
Ride pricing

Ride costs vary depending on your Chariot's pickup time at your stop.
PEAK: 7-9:15 AM and 4:30-6:15 PM
OFF PEAK: Open-7 AM and 6:15 PM-Close
Note: Open and close times vary by route.

HOV Passenger Counting

- Go Carma

carma



Unique Technology

- Bluetooth occupancy detection.
- GPS trip tracking.
- Zero human interaction required.
- Virtual toll plazas.
- Apps for iOS, Android and smartwatches.
- Keychain beacons for non-smartphone occupants.
- Seamless integration and reporting.

How It Works

Occupancy Detection

An occupant with the Carma app on their phone is detected in close proximity to a Carma Beacon - a small Bluetooth device kept in the glove box.

Trip Tracking

As long as the occupant is detected in the car, the app reports on the total occupancy of the car to the toll agency.

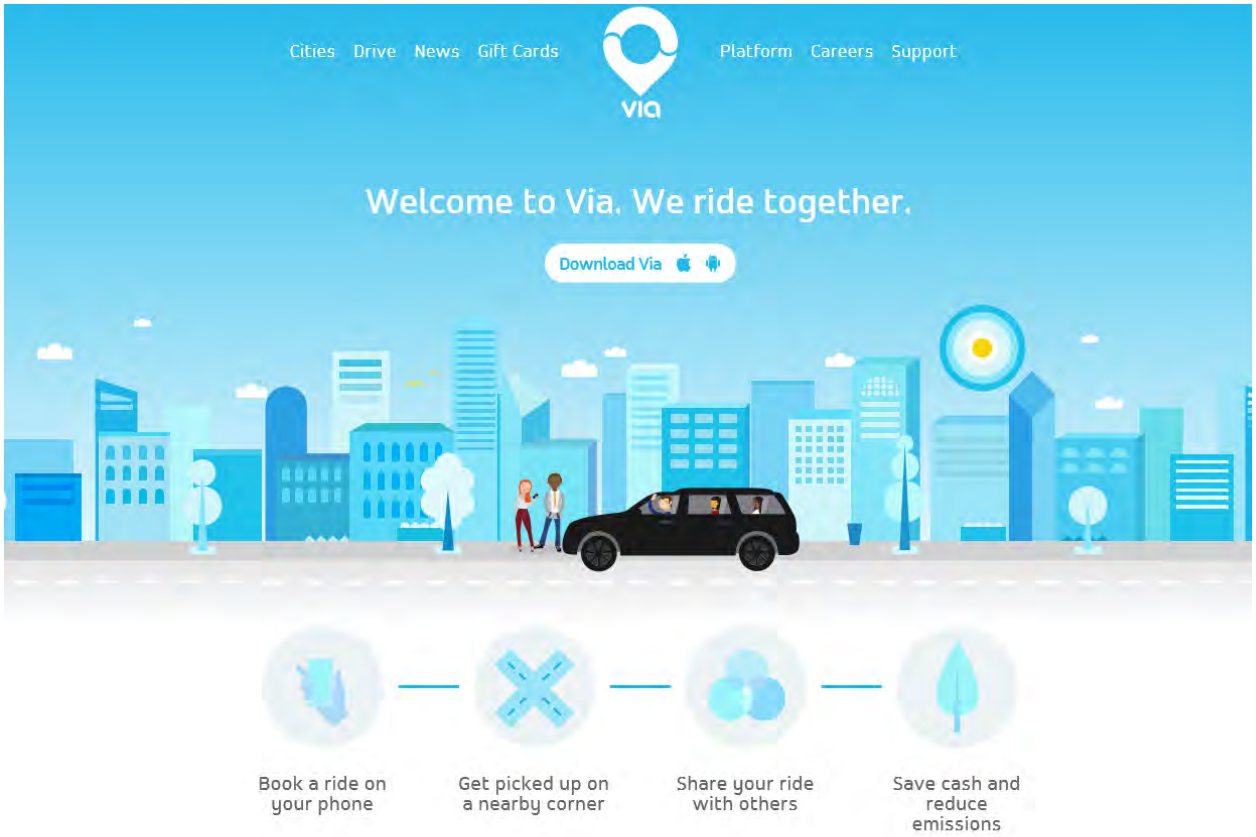
HOV Toll Discount

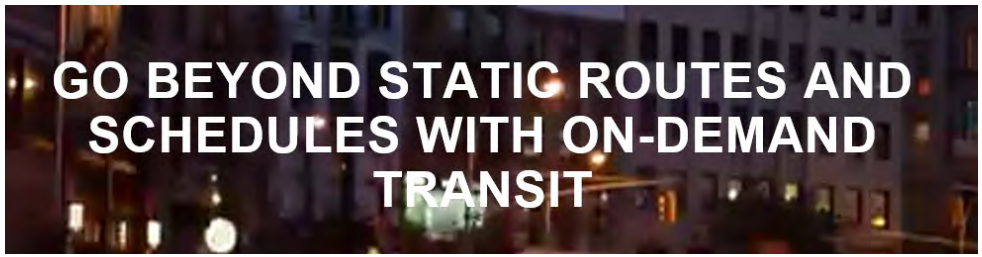
If the car has passed through a toll plaza, or virtual toll plaza, with 2 or more occupants, the driver is eligible for a high-occupancy toll discount.

Private Sector Transit

- Via

- TRANSIT MISSION FULFILLMENT
- Optimize the balance between demand response service and the scheduled bus according to easily adjustable quality of service parameters.
- ELECTRONIC DISPATCH
- 360° FLEET MONITORING
- AUTOMATED FARE COLLECTION





SHARED MOBILITY EXPLOSION!

Rideshare w/in 10 Minutes

- A **transportation network company** (**TNC**) (sometimes known as **mobility service providers** or **MSPs**), connects via websites and mobile apps, pairing passengers with drivers who provide such passengers with transportation on the driver's non-commercial vehicle.
- TNCs include Gett, Lyft, Juno, Cabify, Uber, goCatch, Via, Ola Cabs, GoCar, GO-JEK, Careem, Wingz, Taxify, GrabTaxi, Didi Kuaidi, Easy Taxi, and Fasten.

- TNCs are examples of the sharing economy.

Rideshare w/in 24 Hours

Carma

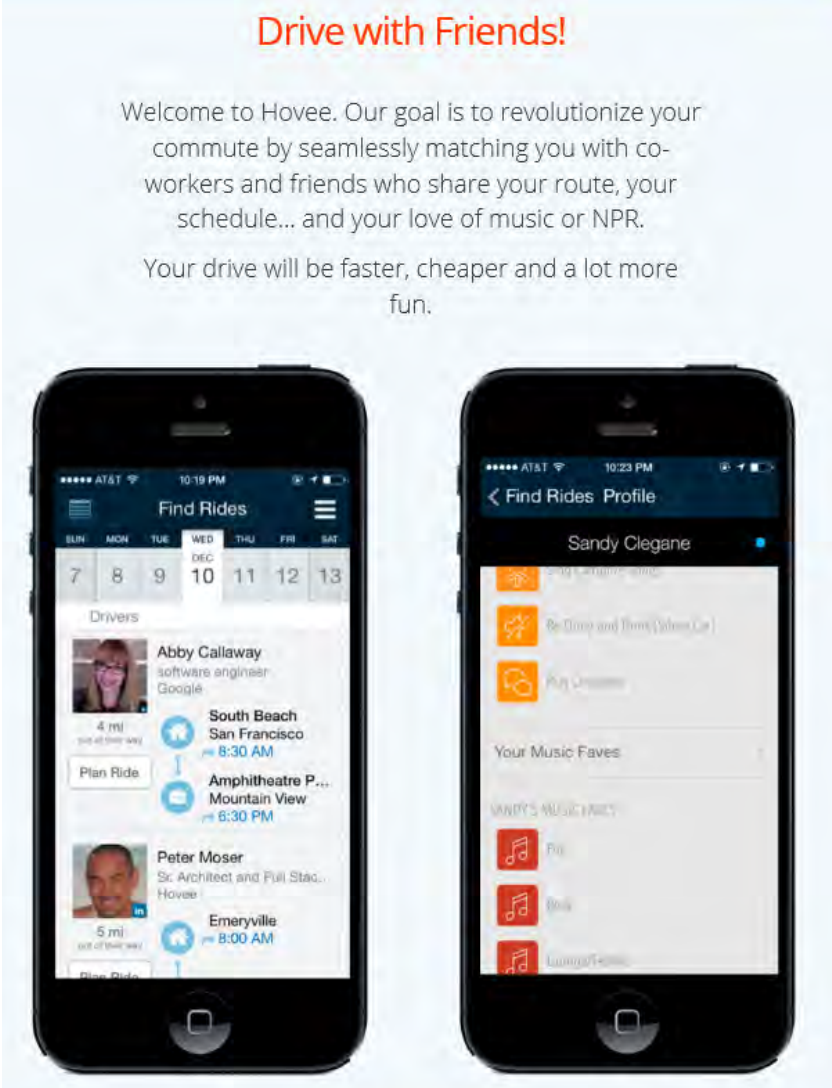
- Sonoma County Transportation Authority (SCTA) are working on innovative transportation programs that help reduce vehicle miles traveled (VMT).

- **Carma Ridesharing**
  The Metropolitan Transportation Commission approved grants totaling $1,975,000 for the implementation of real time ridesharing program, Carma. Carma is in Sonoma, Contra Costa and Marin counties. The SCTA, with its partners, developed a region-wide program, one of the largest in the world.
- Coordination between non-profits, potential affinity groups and the private software vendor created the “backbone” of a real time rideshare network.

Rideshare w/in 24 Hours

hovee

- Hovee is a company focused on transforming daily commuting and making it more efficient, productive and fun.
- We have developed a carpooling app that makes it easy for employees to find shared rides and spend time with people they know, or make new connections.
- Our goal is to have you “love your commute!”

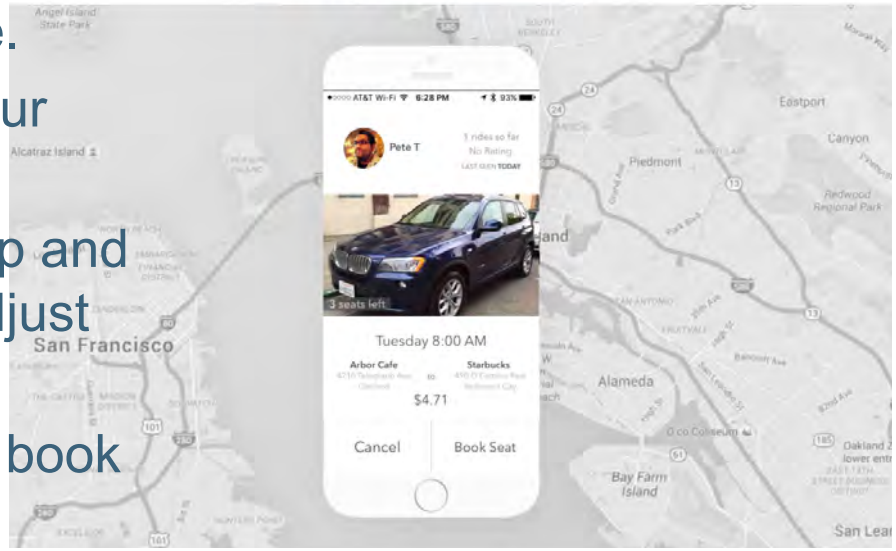


Rideshare w/in 24 Hours

- Carzac

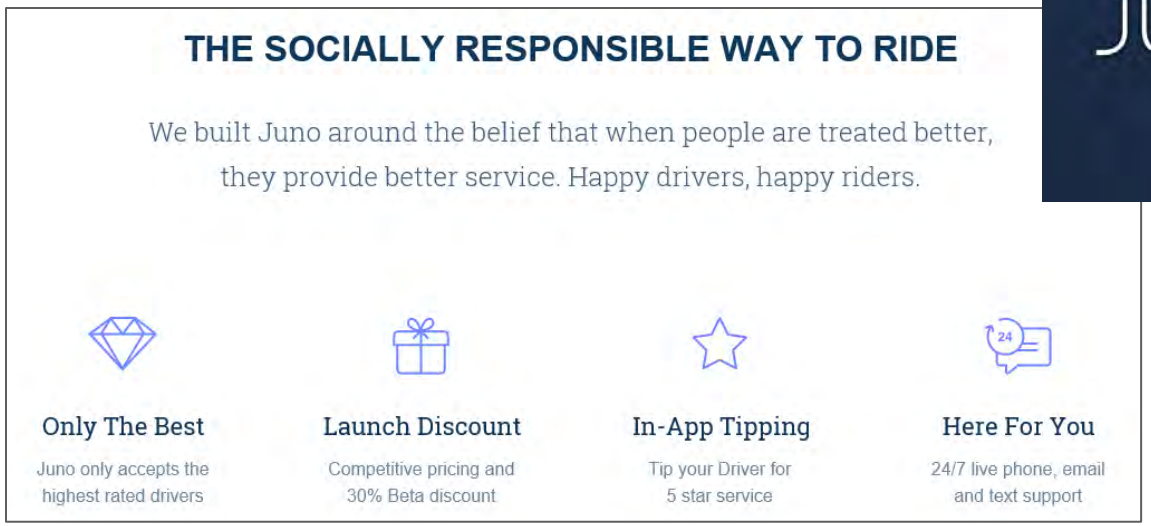
carzac
share your commute

- A new affordable way to commute.
- Drivers, design a route that fits your commute.
- Pick places you'd be happy to stop and times you typically go. You can adjust your plans at any time.
- Riders see routes that match and book a seat with one tap.



- Take a break from the stress of driving and crowded transit. Carzac shows you convenient, affordable rides on your daily commute.
- Meet at a local cafe, get in and go. As a rider you just chip in for the cost of gas, all handled through the app.

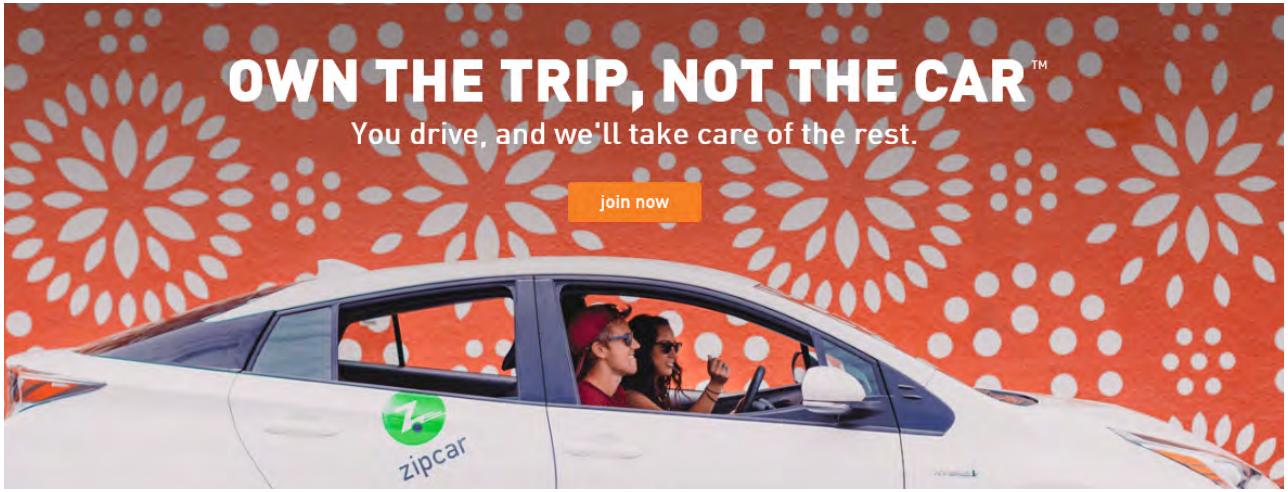
Taxi-Like Services



- Juno is a US startup company in the ride-sharing business.
- Juno has an equity structure that will facilitate drivers owning fifty percent of the founder's equity by 2026.
- In addition, Juno has announced that it will take a "smaller cut off every ride: Just 10% compared to Uber's 20% to 25%", as part of a strategy to attract and retain happier drivers.

Carshare

- Car2Go, Zipcar, Enterprise Car Share



What is Car Sharing?

- Drive cars by the hour or day. Gas & insurance included.
- Now in neighborhoods, cities and airports
- Saves hundreds of $ over car ownership
- Memberships start as low as $7/month.

P2P Carshare

- Getaround, RelayRides, Ford Car Swap

- **Peer-to-peer carsharing** (also known as **person-to-person carsharing** and **peer-to-peer car rental**) is the process whereby existing car owners make their vehicles available for others to rent for short periods of time.
- Peer-to-peer carsharing is a form of person-to-person lending or collaborative consumption, as part of the sharing economy. The business model is closely aligned with traditional car clubs such as Streetcar or Zipcar, but replaces a typical fleet with a ‘virtual’ fleet made up of vehicles from participating owners.

P2P Carshare

Getaround

TURO

Rent Centric
On-Demand Rental Technology

- With peer-to-peer carsharing, participating car owners are able to charge a fee to rent out their vehicles when they are not using them.
- Participating renters can access nearby and affordable vehicles and pay only for the time they need to use them.
- Businesses within this sector screen participants (both owners and renters) and offer a technical platform, usually in the form of a website and mobile app, that brings these parties together, manages rental bookings and collects payment. Businesses take between 25% and 40% of the total income, which covers borrower/renter insurance, operating expenses, and roadside assistance.

Bike Share

- Motivate, Deco Bike, Bcycle, NextBike

- A **bicycle-sharing system**, is a service in which bicycles are made available for shared use to individuals on a very short term basis.
- Bike share schemes allow people to borrow a bike from point "A" and return it at point "B". Many bike-share systems offer subscriptions that make the first 30–45 minutes of use either free or very inexpensive, encouraging use as transportation.

Personal Electric Transport

- Enzo foldable ebike, GenZe electric bikes, Scoot

The electric moped scooter

The electric skateboard

The electric scooter

The Segway E+ / Airwheel S3 & clones

The electric unicycle (aka self-balancing unicycle)

The electric bicycle / electric folding bike

Vanpooling

- Enterprise, Vride, Pool Rewards
- **Vanpools** are an element of the transit system that allow groups of people to share the ride similar to a carpool, but on a larger scale with concurrent savings in fuel and vehicle operating costs.

'POOL REWARDS
it pays to rideshare

'Pool Rewards' is a special incentive program available through Commuter Connections designed to encourage current drive alone commuters to start or join a vanpool.

Commute Mode Detection Technologies

- Strava, MapMyRide, Moves
- GPS has been gaining importance for travel surveys since the 1990s.
- While it is successfully used to collect accurate information about traveled routes and travel times, it is also beginning to extract added information like transport modes and trip purposes.
- A participant's habit in route choice, travel times, travel mode changes and travel modes is extracted and stored in a profile.
- Using this, at the beginning of a commute, routes that the commuter is likely to take are determined and used to provide personalized real-time time traffic information.

Smartphone Transit Payment

- Passport, GlobeSherpa, Masabi
- With the EASY Pay mobile app (Miami), users can purchase fare tickets right from the palm of their hands and on the go. Ride the Metrorail or Metrobus without the added need for a paper ticket or plastic card -- all you need is your smartphone.

Smartphone Transit Payment

- Passport, GlobeSherpa, Masabi

  - Portland startup GlobeSherpa, which makes TriMet's mobile ticketing app, has been acquired by a company called RideScout. RideScout plans to integrate GlobeSherpa's online tickets into its own guide for finding urban transportation options.
  - It integrates car-sharing options, transit times and other features in a single format so travelers can pick among several options to reach their destination.

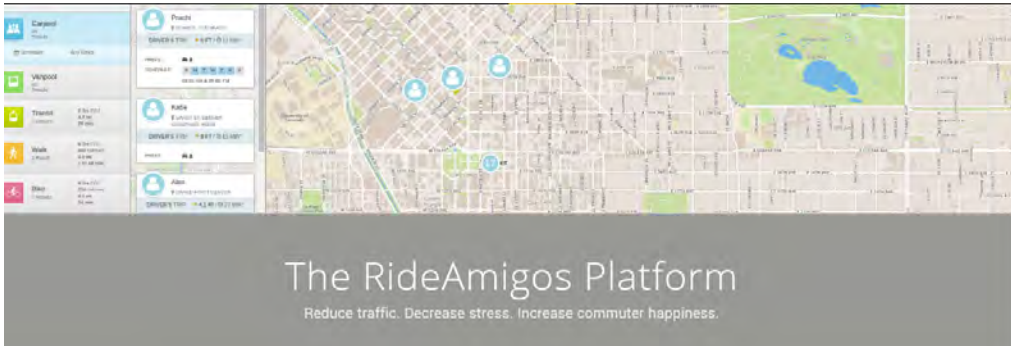
Smartphone Parking

- ParkMe, Parkmobile, Pay-by-Phone

- Pay-by-phone parking allows any driver parking in a fare required space the option to divert the expense to a credit card or to a mobile network operator via the use of a mobile phone, mobile application or computer, opposed to inserting cash into a parking meter or pay and display machine.

Miscellaneous Apps

- City Mapper, Transitscreen, Modeify – TDM Trip Planner



MODIFY

TRANSITSCREEN

Platform Features

Don't let your commuters miss out on any commute options again. Help them use all available modes of transportation, including ridesharing, vanpooling, transit, bus, biking, and walking.

Provide users with the most important information all in one place, including trip logging, personal statistics, virtual badges, leaderboards, challenges, and more.

Users can make use of our advanced rideshare matching algorithms to connect with other carpool drivers or passengers quickly and easily.

Citymapper

SHARED MOBILITY EXPLOSION!

Commuter Benefits

- Commuter Check Direct, Commuter Benefits, Wageworks

Commuter Check Direct®

  - Commuter Check Direct offers a full suite of commuter products packaged in a low-hassle self-service employee program. This fully-comprehensive platform has all the bells and whistles needed to make your transit benefit program a total success.

WageWorks

- WageWorks, Inc. engages in administering consumer-directed benefits (CDBs), which empower employees to save money on taxes, as well as provides corporate tax advantages for employers in the United States.

Personal Rapid Transit

- 2getthere, Ultra Global (London Heathrow)

- **Personal rapid transit (PRT)**, also referred to as podcars, is a public transport mode featuring small automated vehicles operating on a network of specially built guideways.
- PRT is a type of automated guideway transit (AGT), a class of system which also includes larger vehicles all the way to small subway systems.

Niche Ride Match

- Zimride, Otto (eRide Share)

- **Zimride** connects inter-city drivers and passengers through social networking and is the largest rideshare program in the United States.
- The service has over 350,000 users, is active on 125 university campuses, and has partnerships with Facebook and Zipcar.

- Carpool to the store, back home, or cross-country with a member of the Otto community. Members are positively identified with verified .edu email addresses, and photos and feedback are required. Save money, make a new friend, and help the environment, by giving or getting a ride.

SOV APPS

- WAZE Social Traffic
  - Get the best route, every day with real–time help from other drivers.
  - Waze is the world's largest community-based traffic and navigation app.
  - Join other drivers in your area who share real-time traffic and road info, saving everyone time and gas money on their daily commute.
  - Outsmarting Traffic, Together.

MINI CASE STUDY
CCDC BOISE

CCDC Parking Strategic Plan

DOWNTOWN BOISE

Parking Strategic Plan Summary

September 2016

Strategic Plan Background and Context

- Boise is booming again! Development activity is expanding. The economy is growing and diversifying. This is good news.
- A key strategic plan priority is to address challenges related to traffic/congestion and parking in a coordinated and proactive manner.
- The parking programs in downtown Boise (both on and off-street) are well managed and have a strong base of infrastructure that has been well maintained.
- Recently made investments in new parking technology provide enhanced capabilities to offer new customer services and more flexibility in crafting creative programs to meet the new challenges ahead.
- CCDC's effective strategy of leveraging parking development as a tool to remove development barriers and create a compact, walkable urban environment, while simultaneously stimulating targeted development projects, remains a priority.
- However, change is coming. 2018 will bring the sunsetting of the first of Boise's four urban renewal districts (The Central District). The pending sunsetting of these districts and the tax increment funding they provide prompted a rethinking of how the CCDC and the City handle parking management and the development of parking infrastructure as urban renewal and economic development tools.
- The full version of the Parking Strategic Plan can be found at: *ccdcboise.com/parking/2016-downtown-parking-strategic-plan*

CAPITAL CITY DEVELOPMENT CORP

BOISE CITY OF TREES

Kimley»Horn
Expect More. Experience Better.

Strategic Plan Vision

- Parking downtown will evolve from a stand-alone function to an integral part of an "integrated access management" system.
- The plan embraces a wide range of mobility management options to mitigate parking demand overall while enhancing and improving transportation options for all.
- The City, CCDC, and private sector partners will adopt a "blended strategy" that merges management of assets and resources to better support economic development, parking and transportation, and improve overall communit mobility.

Strategic Plan Priorities

The Parking Strategic Plan recommends the following priority focus areas going forward:

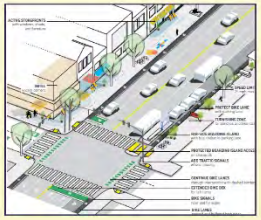
1. Review Program Organization, Management and Technology
2. Maximize Utilization of Existing Parking Resources
3. Increase Utilization of Alternative Forms of Transportation
4. Implement Demand Based Parking Pricing Strategies
5. Review Parking Development and Regulations
6. Create Additional Parking

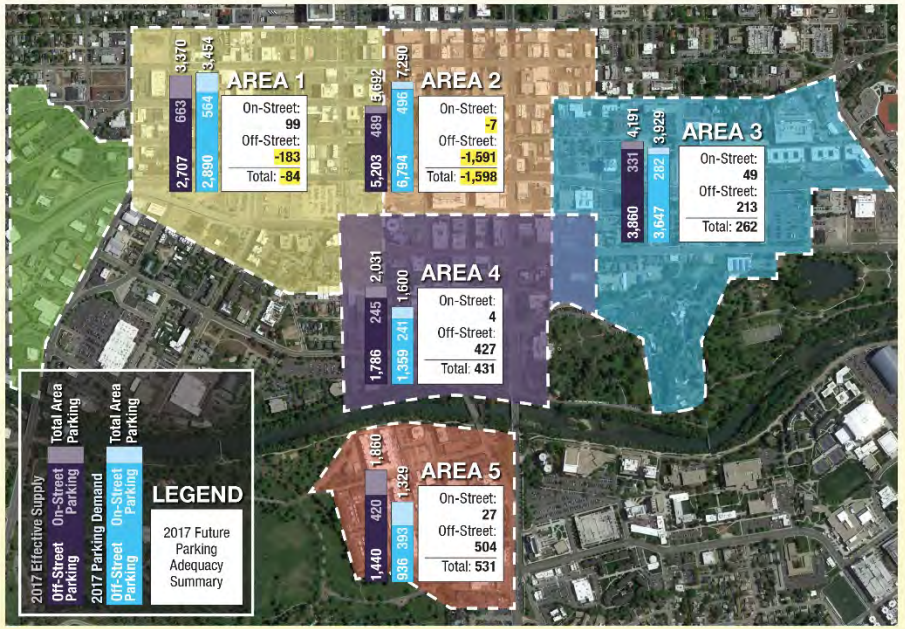
Integration with the City's Transportation Action Plan

The Parking Strategic Plan and the City of Boise's Transportation Action Plan will align and support one another. Even at this early stage, the two plans are well matched in terms of philosophical approach and initial recommendations.

Parking Supply/ Demand Update

With the significant increase in development activity, a new assessment of parking supply/ demand conditions was undertaken in early 2016 to inform the formulation of this plan. As seen in the map at right, parking surpluses exist in Downtown's outlying areas, while a deficit exists in the central urban core. To address this imbalance in the short term, the City and CCDC are coordinating a demand-based strategy between structured and on-street parking assets, while planning for the creation of new mobility services and facilities in the future.





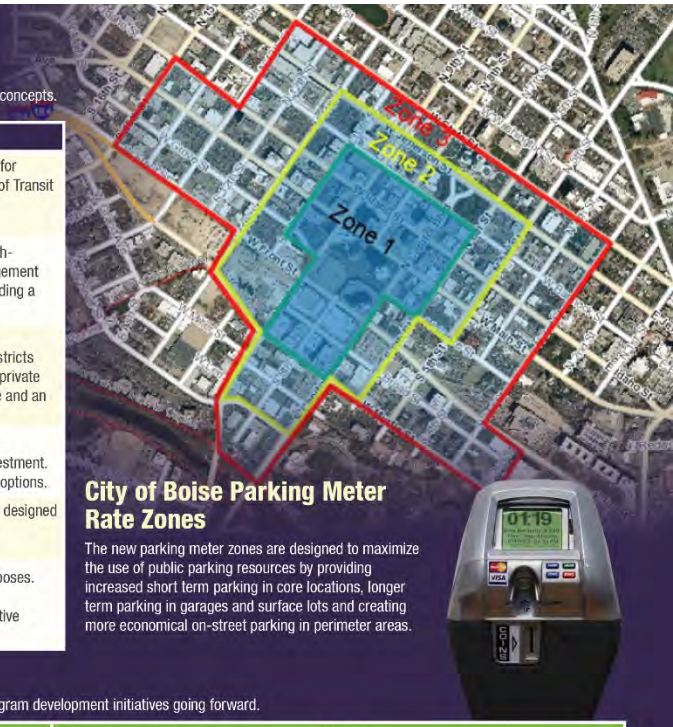
SHARED MOBILITY EXPLOSION!

CCDC Parking Strategic Plan

The Path Forward

The table below contrasts CCDC's economic development approach with a more focused mobility management approach and advocates a blending of these two important strategic concepts.

Characteristic	Economic Development Focused	Mobility Focused	Blended Strategy
Garage Locations	Centrally located near main business areas to support policies of no parking requirements in downtown core and urban design goals (walkable mixed-use environment).	Located on periphery to facilitate mode transition, reduce traffic in downtown core, promotion of alternative modes and support increase in garage size.	Combination of core and peripheral locations and support for multiple modes. Long-term focus to include development of Transit Oriented Development (TOD) corridors.
Rate Level	Low, to attract customers to district businesses.	Higher, to encourage people to use alternate means of transportation.	Performance-based pricing approach – higher rates in high-demand areas, support for Transportation Demand Management (TDM) programs, support for "Park Once" strategies including a downtown circulator and other alternative modes.
Use of Parking Revenue Proceeds	Garage operation, maintenance, capital improvements and replacing worn infrastructure. Then for other agency economic development related initiatives like streetscapes, development agreements, etc. Support DBA programs.	Facilitate TDM initiatives; partial funder of circulator between garages.	Needs to support increased revenue streams to support transportation system growth and development. As TIF districts sunset, parking development responsibility shifts more to private sector with a gradual escalation of parking rates over time and an increase in alternative modes funding.
Garage Design	Single occupant vehicle focus. Mixed-use facility design.	Multi-modal focused: areas for transfers between modes; bike storage; car & van pool priority parking.	Combination of mixed-use design, maximizing shared use potential, supports condominiumization/public-private investment. Promote the use of motorcycles and active transportation options.
Garage Ownership	Publicly owned for general public use.	Mix of public and private. Some public facilities could be sold to finance future TDM programs and new public/private parking facilities.	A noted increase in the use of public-private partnerships, designed for maximizing shared use.
Financing	Primarily TIF for development. Direct parking revenues for operational needs.	Increase in private sector financing. Leverage parking operational revenues to support investment in alternative modes.	Potential for public asset divestment for reinvestment purposes. Increase in private sector financing, including potential reintroduction of parking requirements, LIDs or other creative financing options.



City of Boise Parking Meter Rate Zones

The new parking meter zones are designed to maximize the use of public parking resources by providing increased short term parking in core locations, longer term parking in garages and surface lots and creating more economical on-street parking in perimeter areas.

Recommended Action Plan/Timeline

The following graphic summarizes the start dates of the primary strategic plan action items in a high-level timeline to identify logical sequencing of report recommendations and program development initiatives going forward.

2016

Q4

- Finalize Parking Strategic Plan
- CCDC & City Plan Approval
- Pedestrian Safety Improvements *(Page 23)*
- Finalize Exterior Parking Garage Sign Design
- Adopt New Garage Design Guidelines
- Address appropriate elements of the Parking Management Best Practices Review and Peer Cities Review
- Review On-Street Parking Program Tools *(Page 35 and Appendix B1 and B2)*
- Develop Mobility Prioritization Framework *(Page 28)*
- Develop Mode Share Metrics *(Page 30)*
- Develop Mobile App
- Expand Zone 3
- Implement License Plate Recognition
- Implement a regional Transportation Management Organization
- Implement a remote parking shuttle program (CCDC/COB)
- Integrate TAP with Parking Plan *(Page 26)*
- Create "Travel Options Consortium" *(Page 37)*
- Develop Overall Mobility Management. Action Plan *(Pages 37 and 38)*
- Plan for Next Parking Garage *(Page 41)*
- Identify TDM Program Funding Strategies *(Page 41)*

2017

Q1

- Annual Review of Parking Rate Coordination *(Page 39)*
- Complete Detailed Parking Regulatory Policy Review *(Page 40)*
- Install New Signage *(Page 35)*

Q2

- IPI Program Accreditation *(Page 18)*
- Strategies to Improve Private Parking Utilization *(Page 36)*
- Create Car Sharing Policies *(Page 28)*
- Create Emergency Preparedness Manual *(Page 34)*
- Advance Locally Preferred Transit Alternatives *(Page 28)*

Q3

- Finalize Central District Sunset Plan *(Page 40)*
- Finalize Future Garage Financing Strategies *(Page 41)*
- Develop Comprehensive TDM Program Scope including defined "First & Last Mile" Strategies *(Page 37)*

Q4

- Introduce New TDM Program *(Page 37)*
- Begin Development of Access Management Public Education Campaign *(Page 37)*

2018

Q1

- Annual Review of Parking Rate Coordination *(Page 39)*
- Develop Alleyway Enhancement Plan *(Page 28)*
- Develop Enhanced Shared Mobility Strategies *(Page 29)*

Q2

- Street Quality Enhancements *(Page 28)*
- Enhance Downtown Bike Network and Connectivity *(Pages 28 and 30)*

Q3

- Roll Out Community-Wide Access Management Education/ Research Website (Mobility Lab Model) *(Pages 30 and 31)*

Q4

- Promote "Park Once" Strategies *(Pages 28 and 30)*
- Plan and Fund Next Parking Garage *(Page 41)*

Primary Responsibility:

Blue = CCDC | **Green** = Boise City | **Purple** = Shared*

Page numbers refer to the Downtown Boise Parking Strategic Plan located at:
ccdcboise.com/parking/2016-downtown-parking-strategic-plan/

*Could also involve VRT, ACHD, BSU, and other partners.

SHARED MOBILITY EXPLOSION!


Thank You!

Slide Title Goes Here

- Bullets/Text
  - Level 2
    - Level 3