Transit Scheduling Platform

We’re creating a platform that can receive orders from many different sources, and which supports operations with multiple optimization logics and modules.

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Platform Overview

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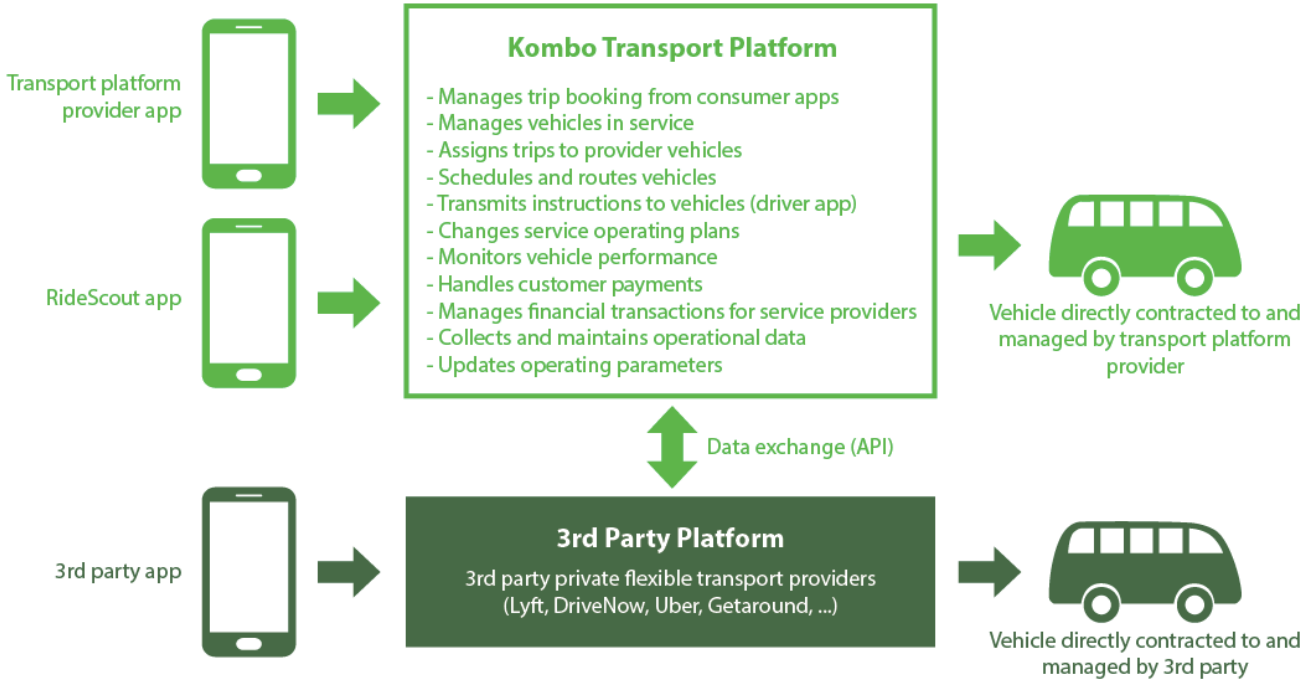

Customer App

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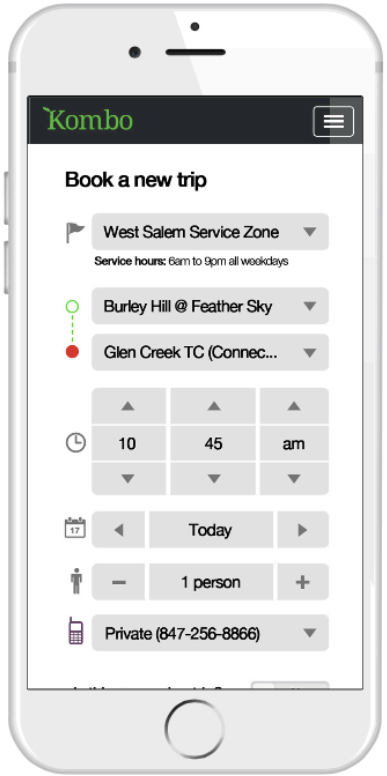
- Consumer app for booking trips



Service Layers

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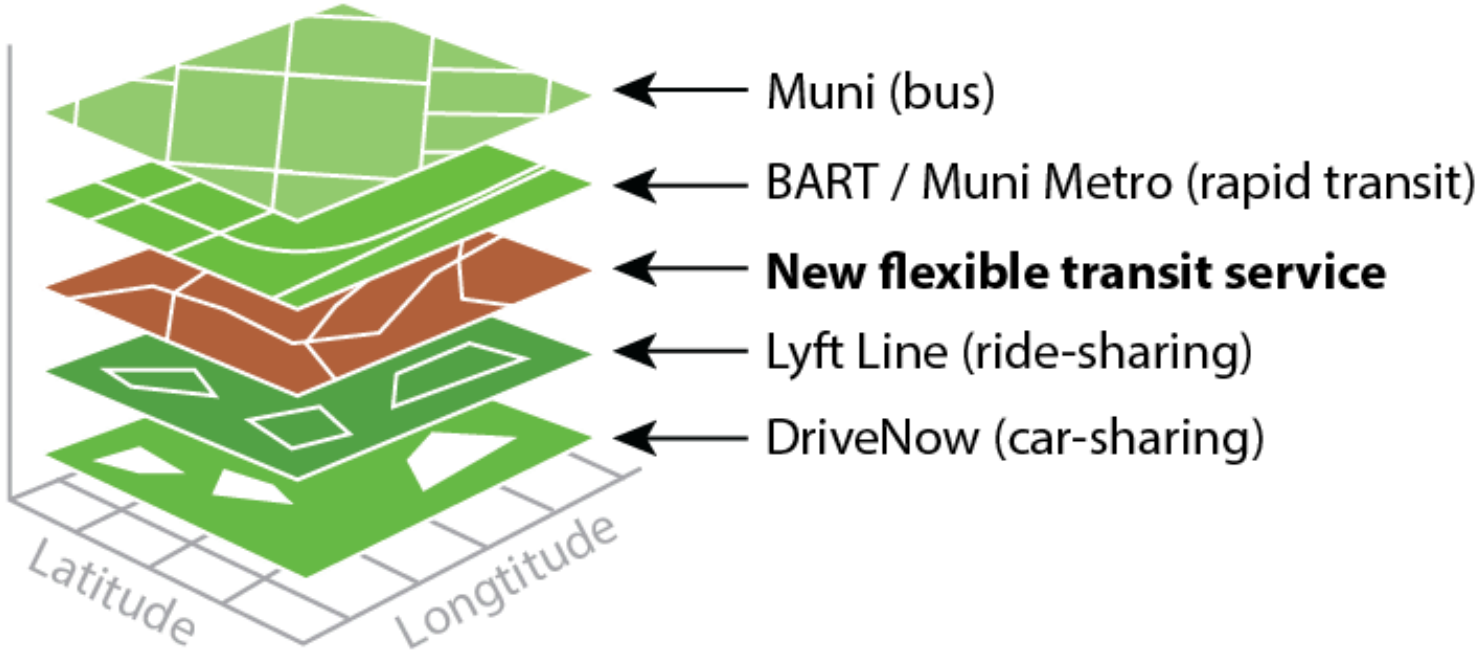

Service Selection Proces

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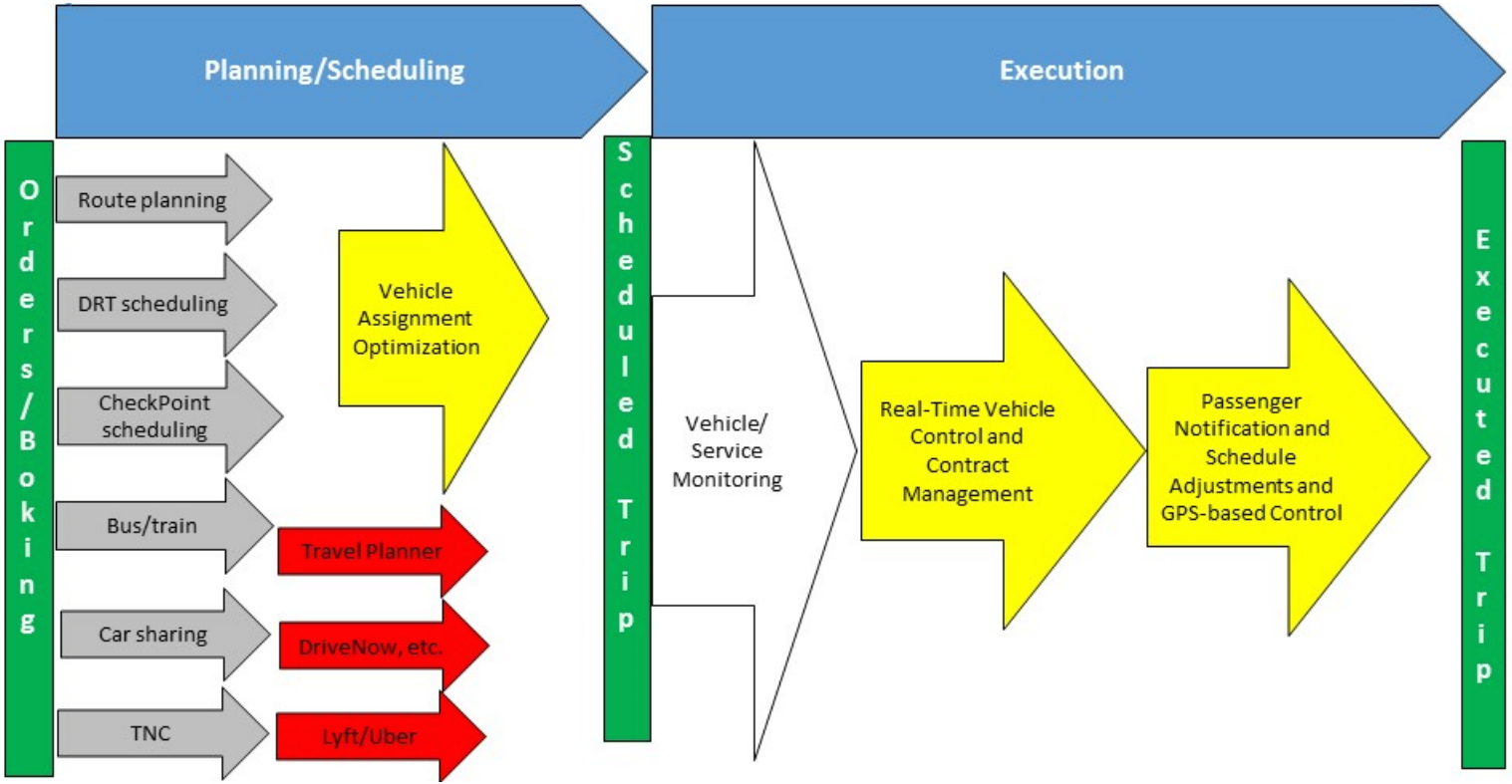

Driver App

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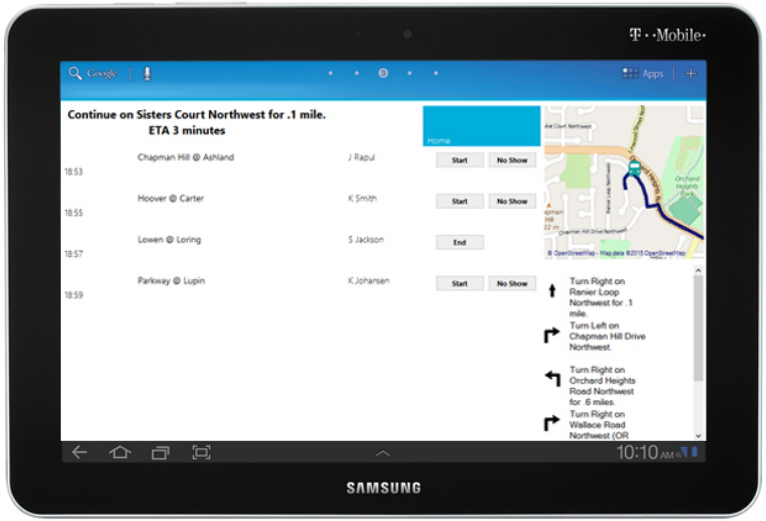

The core of MobilityDR is an automated vehicle scheduling system that determines which vehicle in a service zone to assign each customer trip to as well as the sequencing of passenger pick-ups and drop-offs and the routing of the vehicle. The scheduling system must handle a multiplicity of service configurations, ranging from many-to-many “classic” dial-a-ride services in some zones to more structured services in other zones—such as feeder services to light rail stations and services with checkpoints or flex-routes—and both one-time and subscription trips for passengers. MobilityDR incorporates multiple scheduling algorithms, used as appropriate, to enable these locally-tailored services to operate effectively

Open Data

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With national data transparency efforts like President Obama's **Open Data Initiative** and municipal projects like New York City's *Big Apps* or San Francisco's *Data SF*, government agencies across the country have **been opening their raw data sets**. With the debut of City-Go-Round and media coverage generated about transit data transparency, many transit operators have taken steps to release their **schedule and route information** to third party developers, who in turn use the data to develop an array of applications to **improve rider experience**.

A platform for less CO_2 and less traffic congestion

Bringing true multi-modal and demand-driven transport to San Francisco will decrease CO_2-emission.

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More occupancy = Less CO2

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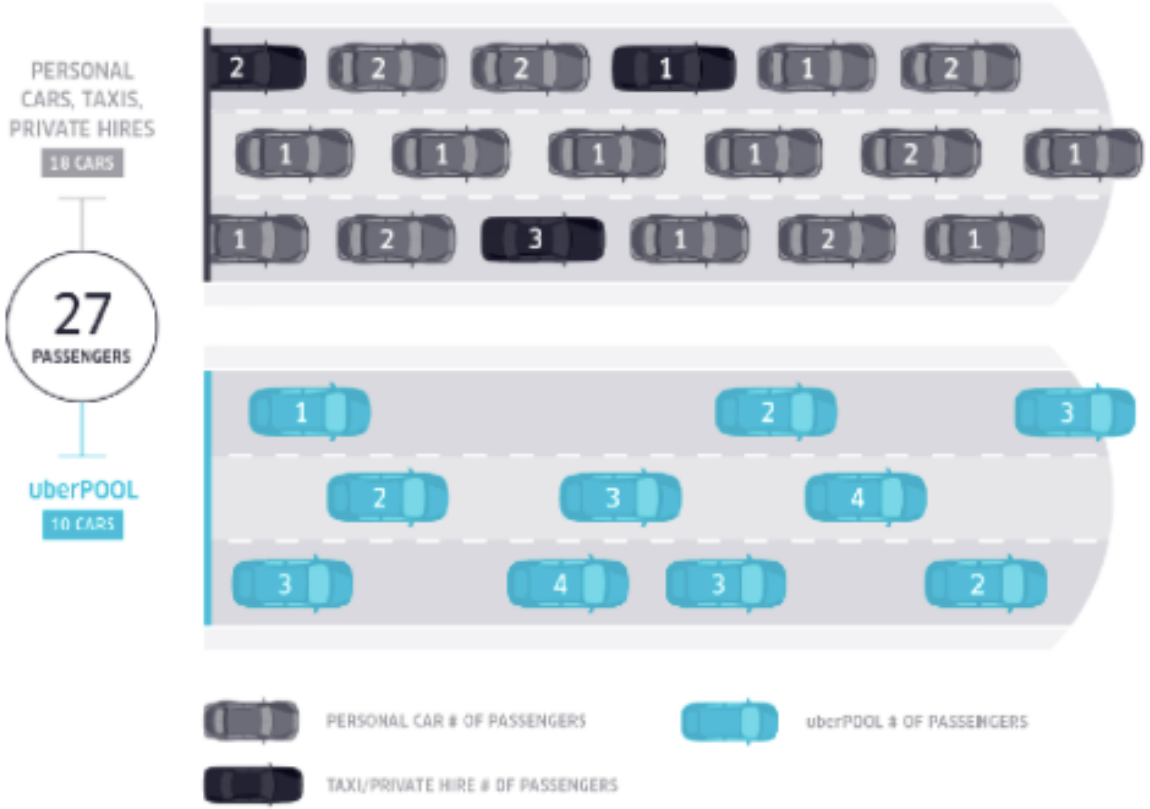
- A single platform can fill empty seats across multiple suppliers



Multiple Pathways

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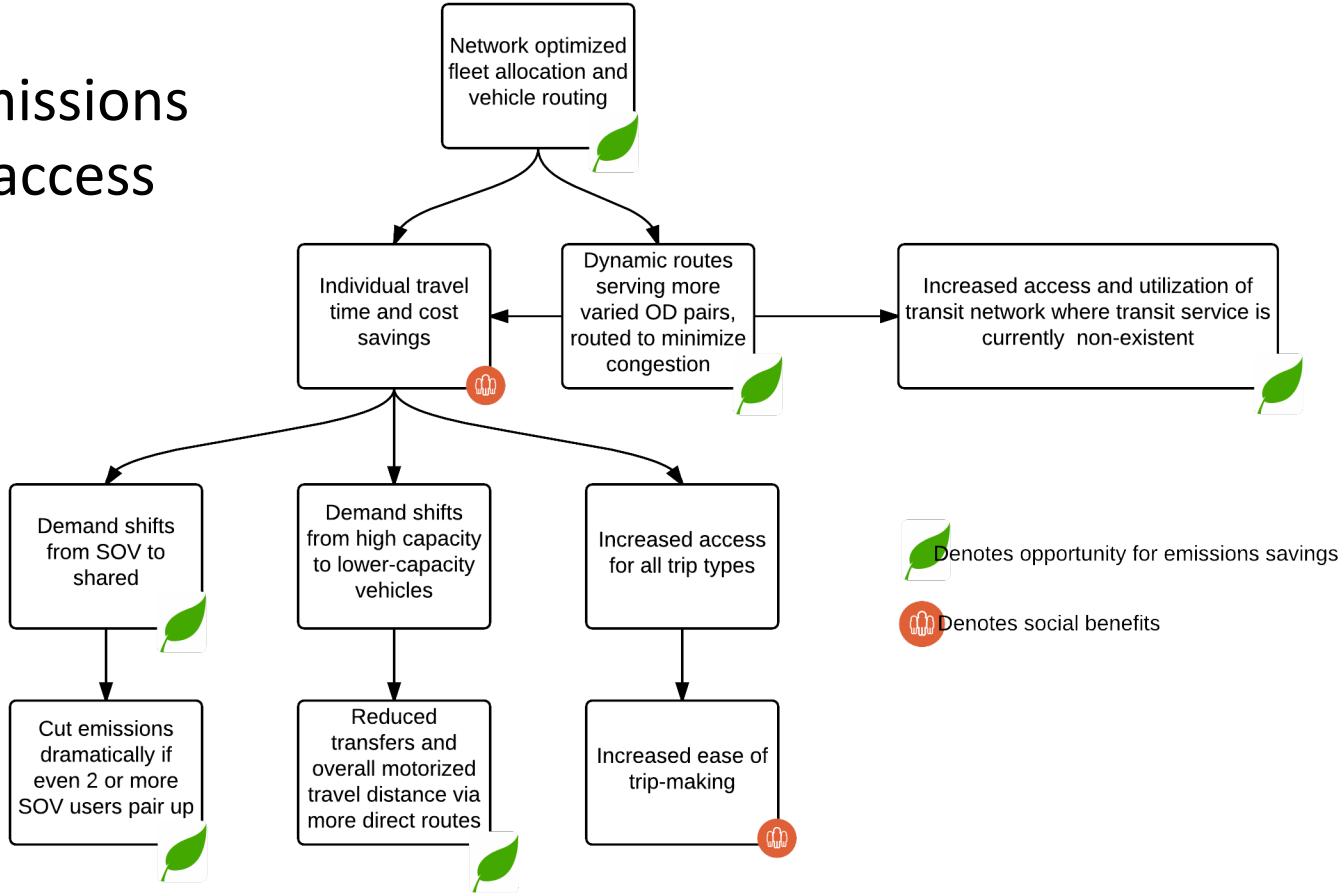
For reducing emissions and enhancing access



The Best of Two Worlds.

Combining the flexible transit solutions, **tried and proven** in several U.S. cities, with the experience from Denmark of creating a national **platform for flexible transport**.

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What is Flexible Transit?

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In short: A Ride-Share Service with an On-Demand element

- **Demand Responsive Transit** serves trips in direct response to passenger demands for origin-to-destination service, traditionally served address-to-address
- **Checkpoint DRT** provides service from point-to-point with multitude of points in service area, passengers must walk to/from checkpoints to access vehicle
- **FlexRoute**—route has origin and terminus, but vehicle will dynamically deviate from route on demand to pickup or drop off passengers
- **Target Markets** are segments of all general public transportation markets—work trips, shopping trips, social-recreational trips, etc.

Does Flexible Transit Fit in Public Transport?

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- More **tailored to individual** trips than conventional fixed route transit
- As population densities and trip densities decrease, flexible transit begins to have advantages compared to conventional transit
- Flexible transit services move **smaller groups of travelers** than well-patronized fixed route services and have (much) less capacity
- Flexible transit services tend to be (much) **less expensive** to produce than conventional fixed route service

Capacity vs. Costs

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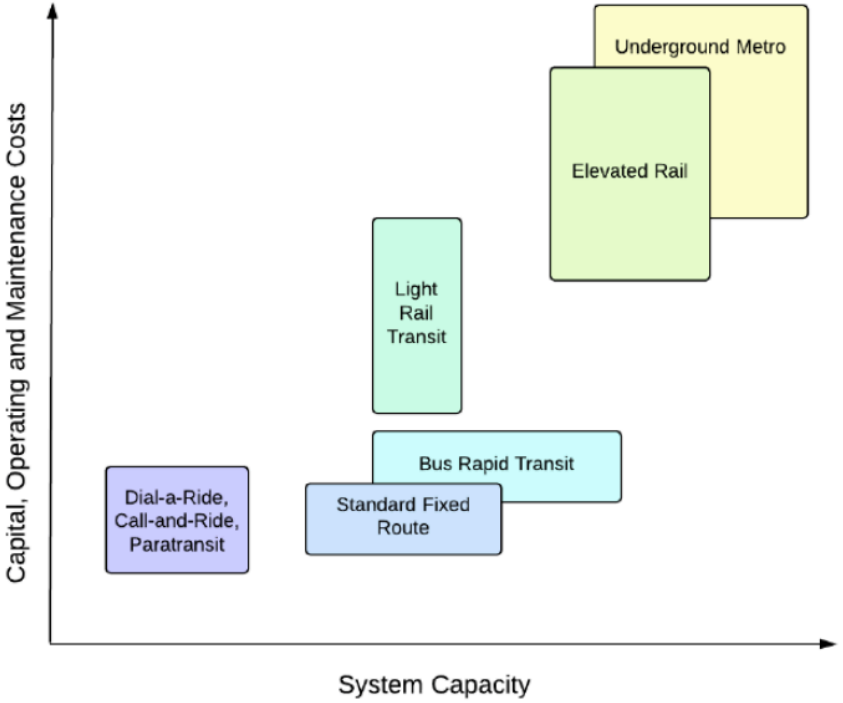
- Different types of transport have the necessary capacity for the task or area.
- The gaps - all the white space - can be filled with flexible services. Flexible services **can expand the size and shape of the rectangles** denoting traditional types



The Multi-Modal System

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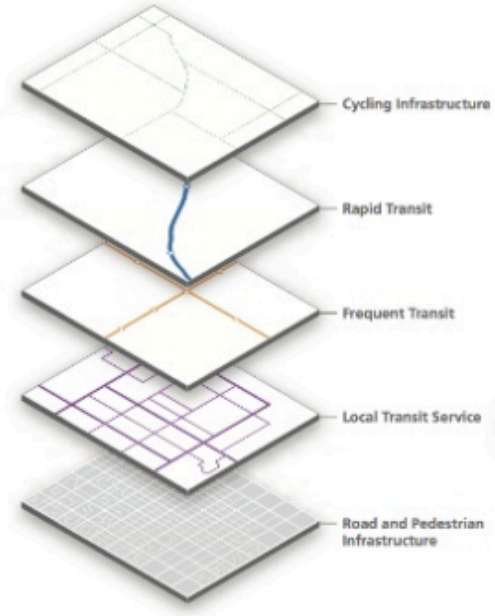

Kombo provides the foundation for having a true multi-modal transit system

Regular Transit Options in SF

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The SFMTA system can be **quite crowded** and **sometimes irregular** too. But it is inexpensive—only $2.25 (youth, senior, disabled: $0.75) with a free transfer, and takes you **almost everywhere**.

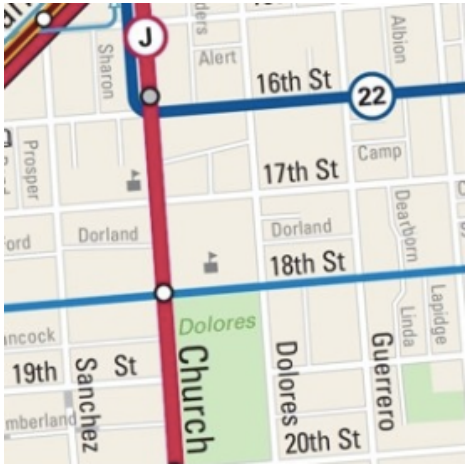

Image source: SFMTA

Why Flexible Transit?

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- Already, SFMTA and BART provide a high level of service by **fixed route transit** in many parts of San Francisco and for many residents and visitors
- Transit accounts for 31% of non-walking trips in the city (SFMTA 2014 survey)
- But 5 of 8 non-walking trips are made by private auto, which means there is still **room for growth in public transit usage**
- Many local trips are not easily made by current SF transit service
- Thus **flexible transit** provides important **additional** layer of public transport service in SF

Different Urban Transport Modes

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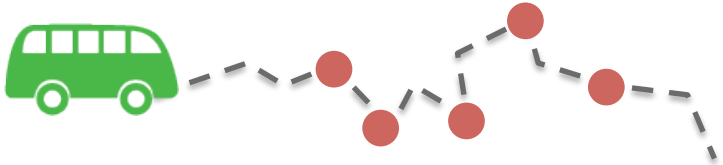
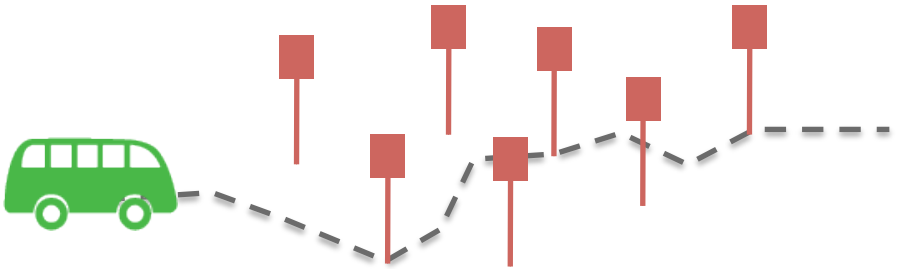


Address-to-address
On-demand (Uber and Lyft)

Stop-to-stop on a schedule
(Muni bus)



Flexible On-demand Transit
(MobilityDR)

Local Circulation Example

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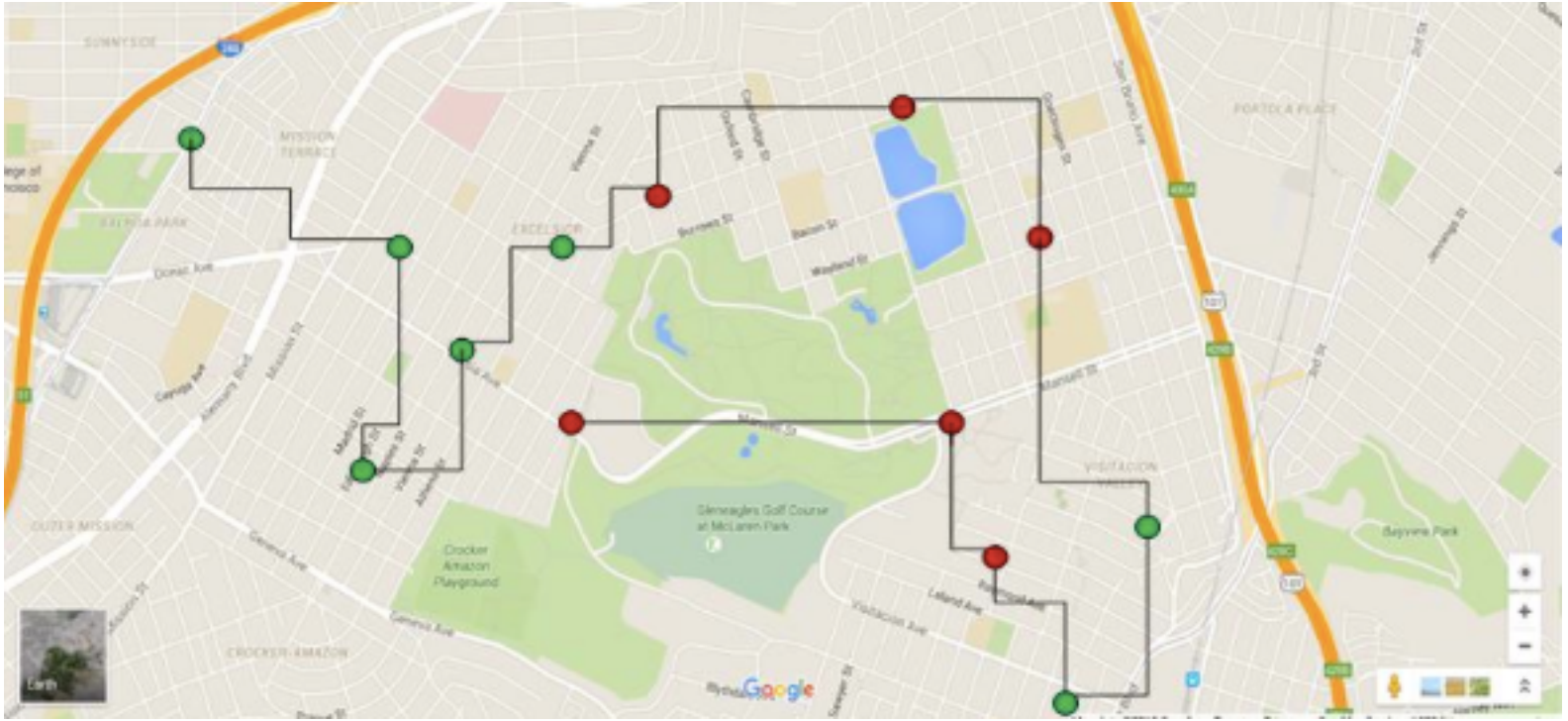

Augmenting Public Transport in SF

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- Flexible transit will be focused on **under-served markets**
- Short-to-medium trips not always served well by existing SFMTA service, particularly in western and southern areas of the city with less dense transit service compared to the central region
- Many trips' origins/destinations don't closely follow the route of transit lines, producing **substantial walk distance** to transit stops– limiting access for some to line haul modes
- Flexible transit brings transit systems **closer to the rider**, creating an opportunity to provide quality service to residents in such situations

Augmenting Public Transport in SF

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- First mile/last mile **feeder service** to SFMTA Metro and BART stations is another prime market for flexible transit
- Long walking distances to rail transit stations for some residents represent a deterrent to transit use
- Flexible transit is a high quality access mode that can overcome these distance hurdles by **delivering users directly** to rail transit stations

First-Mile/Last-Mile Service Connections

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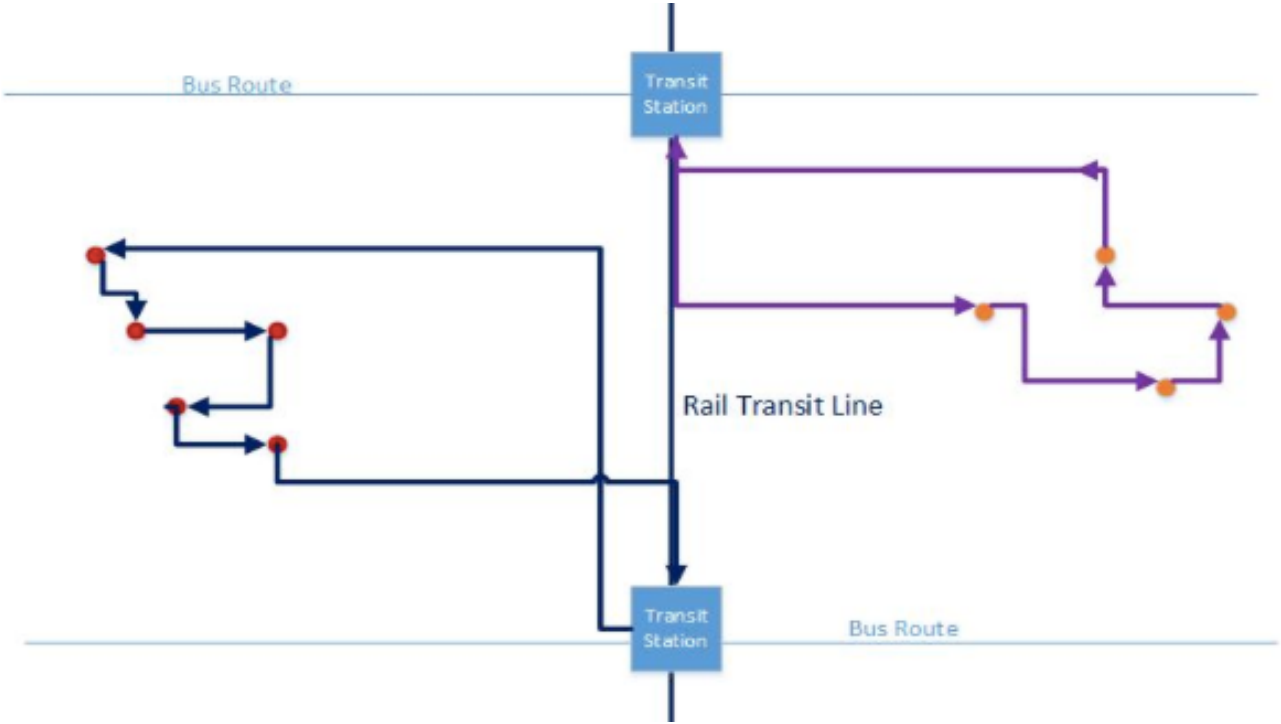

Augmenting Public Transport in SF

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- Some SF residents experience difficulty and/or inconvenience in walking to and transferring between transit services—seniors, those with minor mobility limitations, riders carrying packages etc.
- Such residents would prefer transit service that provides direct origin to destination transportation—which flexible transit can do
- The TNCs can also serve this market, but at a significantly higher price to users than public transport—and with much less service in the lower density areas of the city

The core system and processes provides a public and accountable platform for demand-driven individual transport, which supports integration with a wide range of transportational needs and services – both public and private

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Timeline & Milestones

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