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PTO/SB/16 (07-06)

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PROVISIONAL APPLICATION FOR PATENT COVER SHEET – Page 1 of 2

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

Express Mail Label No. EV 496218161 US

INVENTOR(S)		
Given Name (first and middle (if any))	Family Name or Surname	Residence (City and either State or Foreign Country)
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Additional inventors are being named on the _____ separately numbered sheets attached hereto

TITLE OF THE INVENTION (500 characters max):

Shared Transit System and Service Network

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ENCLOSED APPLICATION PARTS (check all that apply)

☐ Application Data Sheet. See 37 CFR 1.76	☐ CD(s), Number of CDs _____
☒ Drawing(s) Number of Sheets 9	☐ Other (specify) _____
☒ Specification (e.g. description of the invention) Number of Pages 22	

Fees Due: Filing Fee of \$200 (\$100 for small entity). If the specification and drawings exceed 100 sheets of paper, an application size fee is also due, which is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

METHOD OF PAYMENT OF THE FILING FEE AND APPLICATION SIZE FEE FOR THIS PROVISIONAL APPLICATION FOR PATENT

☒ Applicant claims small entity status. See 37 CFR 1.27.	100
☒ A check or money order is enclosed to cover the filing fee and application size fee (if applicable).	
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PROVISIONAL APPLICATION COVER SHEET
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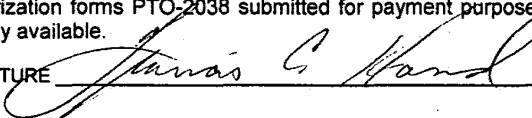


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SIGNATURE



Date February 12, 2007

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Docket Number: 514810.1

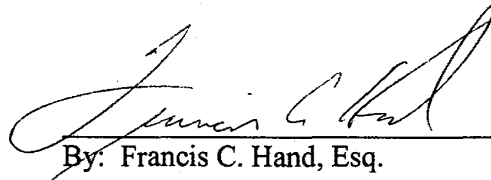
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By: Francis C. Hand, Esq.

310420

SHARED TRANSIT SYSTEM AND SERVICE NETWORK

This application is a Provisional patent Application.

This invention relates to a ground transportation network. More particularly, this invention relates to a ground transportation network matching individuals with transport capacity on a supply and demand basis.

Transport capacity, for example cars, often travel long distances with minimal load (i.e., SUVs on daily commutes with only the driver occupying the vehicle). Such capacity is disused because of a number of reasons, including (a) an occasional need for greater capacity causes consumers to buy excess transportation capacity, (b) variations in schedule and destinations traveled create non-matched transportation needs compared with other household members, (c) lack of knowledge of trusted users who could conveniently use this excess capacity, and (d) difficulty in providing an economic benefit to incentivize the driver to share their excess capacity. Meanwhile, the driver of a vehicle often has no choice but to use a personal transport vehicle (despite the high costs involved) because of lack of accessibility, inconvenient scheduling, or multiple interchanges required if they were to rely on public transport systems.

Proposals have been made, for example, in US Patent 6,697,730, to use a central assigning system and communications devices adapted to be associated with vehicles for transmitting information from the vehicles to the central assigning system, and for receiving information from the central assigning system. Such a system, if implemented, would represent advances over methods in common practice, however, it is believed the invention described herein makes such systems more practical and useful because of the following significant innovations and claims: methods to reduce

the workload/steps necessary on the driver and the rider to make this system less inconvenient; methods to improve the trustability of drivers and riders, increasing the likelihood people will use this system; a hardware device which would communicate visually to external riders; automatically determined destinations, increasing availability of shared transport vehicles; and an ad-hoc nature to the proposed system which enables casual use by registered users.

The inefficient use of transport capacity results in approximately 3-4 times as many cars on the road as would be necessary if capacity were only 50% occupied. This has the additional implications created by the excess consumption of fuel in potential environment problems (CO² pollution and global warming) as well as geopolitical problems (for example, many countries including the United States could be energy self-sufficient if they used their existing transportation capacity only 40% better (versus the 200+% better that could theoretically be achieved).

In cities such as Los Angeles, the transportation network is largely disfunctional (i.e., the average worker spends 1.6 hours of their day in unproductive and costly commuting via personal car on congested highways). Additionally, such a consumer cannot rely on public transit because mass transit "doesn't take them from where they live to where they work".

Inadequate "feeder systems" for the public transit network mean that billions of dollars are spent creating subway and rail systems that are massively underused, in terms of persons transported per hour versus the potential capacity of these rail systems. The flexibility of highway and road networks, along with the critical mass of car penetration and the marketplace dynamic of urban real estate value, however, means

that wherever a highway is built, personal transport cars will soon fill it, creating further urban sprawl, with all the societal and ecological disadvantages that implies.

Personal transport cars are common, among other reasons, because (a) the lack of availability of mass transit networks to serve the home or destination of the driver, (b) the inconvenience of waiting a long or unknown period of time for public transit, (c) fear of traveling with strangers or fear in waiting for long periods at public transit points.

Many large cities have successfully implemented mass transit systems which are widely used by people from a wide variety of socio-economic backgrounds (i.e., London, New York, Madrid, Tokyo). While even these systems can be improved, these examples show that if a shared transit system exists with sufficient timeliness and advantages, it will be widely used. These cities provide transit systems because these systems reduce their cost for infrastructure (i.e., building ever-larger and more inefficient highways) and increases productivity for their citizens and the companies in their region.

So, cities have long sought to provide mass transit systems which take people from where they live to where they work and/or where they shop. However, since the popularization of highways in the 1950s in the US, cities have become increasingly suburban. Highway systems do not complement mass transit systems and, in fact, work against mass transit systems by enabling urban sprawl to the point where mass transit infrastructure is unsustainable (at the extremities of a city center, due to lack of population density) and unattractive (because of inconvenient intermodal interchange). As fewer people use mass transit, less routes are supportable, less area is reachable via mass transit, and thus more people need to rely on relatively costly and ecologically

damaging individual transport, resulting in the mass transit system itself imploding with a lack of critical mass, while personal transport systems simultaneously suffer through massive overcongestion.

Thus, a system is needed which enables regular highway traffic and privately owned personal transport systems to augment and enable public mass transit networks.

Briefly, the invention provides a network system that matches the supply and demand of transportation services by incorporating unused transportation capacity (i.e., empty seats) with a real-time allocation and matching service that enables individuals and goods to conveniently hire that capacity with attractive pricing, rapid responsiveness, better information availability and trusted security.

The network system incorporates telecommunications and computing technology to match the supply of excess transport capacity with the demand for personal transport. In areas where a critical mass of transport providers can be established, this system aims to provide pick-up and drop-off service to within a few hundred yards to the vast majority of locations in a covered area, with response/waiting times of 3-5 minutes under normal circumstances. In addition, different levels of service can be provided, including the provision of transport for goods, persons with special needs, and persons or goods within closed communities of transit providers.

The network system ("Shared Transit System") demonstrates how interconnecting personal communication devices and computer networks with personal and corporate shared transit vehicles can (1) provide revenue streams to drivers who share their vehicle, (2) provide security through the provision of trackability and identification of both drivers and Riders, (3) provide "feeder systems" for public transit

networks, (4) provide trusted networks of pre-approved providers to accommodate scheduled services for special needs cases, such as children or physically disabled persons, and (5) provide a variety of service levels for those who need more than just commuter style transport.

It is believed that an efficient use of the network system would mean that a significant fraction of those households with two or more cars would no longer require the additional car, and that a smaller portion of a national economy will be devoted to widening and expanding a country's highway networks.

The below "Shared Transit System" accomplishes this aim by enabling private transport vehicles to serve as an extension of the mass transit system. Where no mass transit is available, or is inefficient, private transport vehicles act as a public transport mechanism. Where mass transit is available and cost effective and timely, private transport vehicles act as a feeder network to the public transit system.

In situations such as a daily commute, easily predictable trends will flow from the data generated by this shared ride system, and will enable rapid and flexible route allocation that will enable public or private mass transit providers the capability to offer new transit services, such as bus routes, that are determined via stochastic measurement. A rapidly responsive and timely public transit network will result in increasing numbers of public transit riders and recreate the market parameters that are needed for mass transit systems to gain critical mass in ever changing and expanding markets.

Above was mentioned the issue of fear of traveling with strangers in public transit systems. The below system incorporates a security verifying and rating system to

provide that the strangers in shared transit systems are trustworthy. For example, (a) bad drivers (those with excess points or driving convictions) are not allowed to participate in the system, (b) drivers with continually risky behavior are identified through a real-time rating mechanism available to riders and the in-car computer measurement system, (c) drivers who do not pick up riders are rated for their proclivity for failing to do so, (d) riders are rated for unusual behavior through a rating mechanism available to drivers, and (e) riders who refuse rides or miss rides are rated for their proclivity for doing so.

Alongside the issue of trustable strangers is the issue of anonymity. Riders or drivers may be concerned about their safety if a stranger knows how to contact them via their phone. Thus, the below system incorporates a mechanism allowing riders and drivers to contact each other through their phones without knowing the other's phone number or full name, yet still allowing, for example, a driver to message a rider that a hat was left in the vehicle.

These and other objects and advantages of the invention will become more apparent from the following detailed description taken in conjunction with the accompanying drawings wherein:

Fig. 1 schematically illustrates a network system in accordance with the invention;

Fig. 2 provides a table of the transport capacity computing and communications components of the network system in accordance with the invention;

Fig. 3 provides a table of the rider technology components of the network system in accordance with the invention;

Fig. 4 graphically illustrates the multiple uses and operations of the network system in accordance with the invention;

Fig. 5 graphically represents the experience of a rider in using the network system in accordance with the invention;

Fig. 5a graphically representing that same experience of a rider as a flowchart;

Fig. 6 graphically represents the experience of a driver in using the network system in accordance with the invention;

Fig. 6a graphically representing that same experience of a driver as a flowchart.

Operation of network system; and

Fig. 7 graphically illustrates various components used with the invention.

Referring to Fig 1., a person 10 desiring transportation service ("Rider") has a personal communications device 11, optimally equipped with location information ("GPS Phone"), and uses this device 11, optimally equipped with a software layer with transport intelligence ("Rider Software Interface"), to signal a transportation marketplace network ("Shared Transit Marketplace") 12 with a demand interest for a particular start-point ("Pick-up Point") and endpoint ("Destination Point", and together, the "Demand Route"). The Rider 10 has previously registered with the Shared Transit Marketplace 12, providing whatever registration details are necessary to contact and verify the identification of the Rider 10.

Alternatively, the Rider 10' may employ a fixed communications device 11' in order to communicate with the Shared Transit Marketplace 12.

At the same time, all vehicles that wish to provide transportation services which are in transit ("Transport Capacity") have navigation devices, typically using GPS or

other location finding technology, with built-in or external data communication capability, typically using cellular phone data networks ("Sat Nav Trackers"), running a software layer with shared transit transport intelligence ("Driver Software Interface").

When a driver starts the vehicle ("Driver" 13), a Driver Software Interface automatically determines if the Driver 13 is engaged in a traditional route ("Daily Commute"), and registers the route of the Driver 13 ("Supply Route") with the Shared Transit Marketplace 12. Alternatively, if the Driver is not engaged in a traditional route, the driver is prompted for their destination, or possibly is shown a list of riders possibly headed in the same general (or likely) direction as the Driver, for the Driver to consider sharing, if the Driver's destination is not known.

The Shared Transit Marketplace 12, which is also accessible by any internet terminal, provides to the Rider 10 and to the Driver 13 information about Supply and Demand. Optimally, this marketplace 12 is automatically populated with Supply Routes of public transport (buses, trains, commuter bus lines), to provide the Rider 10 with a variety of service types and prices to choose from. Additionally, given the on-demand nature of rides and personal transport, stochastic models can populate the Supply Routes and Demand Routes, in order to enable the Rider 10 and Driver 13 to make better transport decisions. For example, a Rider 10 in a subdivision of 500 homes at 8:30am on a weekday may poll for a Demand Route and see that the only options available from his house to his destination, e.g., Dublin, are a bus that leaves in 90 minutes for €6 or a taxi that could be available in 10 minutes for €35. Given these options, the Rider 10 would possibly be forced to choose a taxi. However, if the stochastic model indicates that 60 cars depart from that subdivision for Dublin every

weekday morning between 8am and 9am, the Rider 10 could be provided the information that, with 90% certainty, a Supply Route would be available in 4 minutes for €4.50. (That is, the Driver of this car in that subdivision simply has not turned on his car yet, and would only be in the subdivision for 1 minute before leaving it for the highway. Therefore, the value of stochastic probable route offerings dramatically increases the quality of the information provided to a prospective Rider; and thus also increases the likelihood of Riders choosing to use Shared Transit in general).

The Driver 13 can pre-register a specific price for a given transit route, or could change their price on-the-fly for a route to reflect the supply and demand for that Route, and the class of service provided (for example, charging more for a Rider who has excess luggage, or for direct point-to-point service by taxi transport, or for inclusion of in-vehicle wireless Internet access in places where that service is available).

Normally, however, pricing for a route would be determined by per mile default rates, the number of seats occupied and other preset fixed and variable charges. While it is anticipated that some users of this system could use it for profit-making routes, it is thought that normally the user will simply be recovering some or most of their transport costs, and some applications may not use billing at all.

One of the possible means, and the most likely, of determining positioning for the Sat Nav Tracker devices and the GPS Phones is through the use of a GPS or Magellan satellite 14 as indicated in Fig. 1. Other means for determining position include the use of cell phone towers to determine location.

Use may also be made of the Internet as indicated in Fig. 1, as one of the means of communicating to and from users and drivers and from fixed kiosks to register trip requests.

The Rider 10, depending upon the mode preferred and the equipment available, can select a Pick-Up Point and Destination Point through a variety of functionally equivalent methods, including (1) calling a person or voice-response system via telephone whom they can tell verbally or through a DTMF IVR system; (2) using SMS via telephone with text indication of Demand Route (i.e., "Go Home", or "Go from 12 Marlboro St to Albany Airport"); (3) via an Internet web interface or dedicated kiosk; or (4) via a GPS Phone with an intelligent and data-driven software interface.

The Rider 10, upon submitting a Demand Route into the Shared Transit Marketplace 12, is presented with a sorted list of the transport options available, by class of service, type of vehicle, time until Transport Capacity arrives at start-point, estimated transit time to end-point, number of legs in the journey, and cost. In the event that the Rider 10 has a Rider Software Interface on their phone 11, the Rider 10 selects from the options available to them. A message is sent to the nearest appropriate Transport Capacity. The Driver 13 is automatically routed to the pick-up point, optimally through Sat Nav Tracker display unit with verbal instructions. A Driver Software Interface determines if the Driver 13 is complying with the pick-up request, optimally based off the vehicle's movement and a period of time for the Driver 13 to automatically accept or deny the request ("Reserved Capacity").

In the event that the Rider 10 does not have a Rider Software Interface, the Rider can receive/respond to a message of available capacity via the means most

conveniently appropriate to them (i.e., verbally, via text message, selecting at the Internet web site, and the like).

Confirmation is then sent to the Rider 10 via a message which optionally directs Rider to an alternate nearby optimal Pick-up Point in order to maximize transport efficiency. For example, if the Rider made a request on an infrequently used street, the Rider may be directed to walk a block or two to a Pick-up Point where Transport Capacity is available.

At any time up to the proximity alert warning period ("Three Minute Warning"), the Shared Transit Marketplace 12 will be working to optimize available capacity and services and will substitute Riders and Drivers, create multiple Riders at the same Pick-up Point to fill the Transport Capacity more efficiently, and the like. The Shared Transit Marketplace 12 will also monitor the Transport Capacity to see if any new capacity has become available which offers a superior service and/or a lower price option to the Rider 10 (for example, if capacity is introduced which reduces the number of transfers necessary).

At the time of the Three Minute Warning, a message is sent to the Driver Software Interface and the Rider(s) with the information pertinent to the pick-up destination and the Riders. The Driver Software Interface then guides the Driver, optimally through audible cues, directly to the Pick-up Point.

At the time when the Rider needs to be in queue ("One Minute Warning"), the Shared Transit Marketplace will optimally automatically confirm from the Rider's GPS Phone 11 that the Rider is positioned within a certain proximity to the Pick-up Point ("Reasonable Rider Proximity"). If the Rider is not within Reasonable Rider Proximity,

the Demand Route request is rescheduled and the Driver is informed that the Rider is not available ("Rider No Show").

At the One Minute Warning Time, a message would optimally be sent to indicate to the Rider to be on the lookout for the Transport Capacity, along with the specific color, model, picture and/or other identifying characteristics of the transport capacity that was arriving.

As illustrated in Fig. 7, a History for Rider transactions is logged by the Shared Transit Marketplace 12, and if a disproportionately high percentage of Rider Demand Route requests result in Rider No Shows (for example, more than 1 out of 10) ("Unreliable Rider"), then the Rider 10 is tested for Reasonable Rider Proximity at earlier times, such as the Three Minute Warning period, and the Driver 13 will not be notified to pick-up this class of Unreliable Rider, unless the Unreliable Rider is already at the Pick-up Point, until such time as Rider No Shows passes a standard as approved by the Shared Transit Marketplace.

Likewise, as illustrated in Fig. 7, a History for Driver transactions is logged by the Shared Transit Marketplace 12. If the Rider 10 is waiting at the Pick-up Point and for whatever reason the Driver 13 does not pick up the Rider 10 ("Driver No Show") and/or is consistently late in picking up Riders, the Driver 13 would be measured for timeliness and Driver No Show rating ("Unreliable Driver"). Such lateness should include reasonable adjustments for consistently gridlocked locations such as city centers, as would be indicated through stochastic measurement of other Driver performance at the same Pick-up Point. The Driver 13 would likewise be expected to measure up to a higher level of performance to overcome an earlier unreliability, or the Driver 13 would

be ranked lower ("Star Ratings"), matched less frequently, and/or possibly expelled from the Shared Transit Marketplace 12.

Although Riders/Drivers remain anonymous, system rankings are available, and Riders have the ability to only request Transport Capacity from Drivers with specified quality Star Ratings, and the like.

Transport Capacity optimally would have an external indicator ("Route ID Display"), optimally a bright display that is about the size and position of the passenger's side sun visor in a car, preferably mounted on the interior of the car, that optimally presents a visual confirmation of the route identification to the external Rider, so that as the Transport Capacity approaches, the Rider can begin approaching the Transport Capacity. While this Route ID is somewhat analogous to the function served by a Bus Route Information display, the Route ID Display has the following additional functions: Route ID Display can be visually distinctive as it approaches a Rider (analogous to the flashing lights of a School Bus as it stops to pick up children). As there could be hundreds of vehicles on the road that also provide Transport Capacity, this distinctive display serves the unique function of distinguishing the Dispatched Transport Capacity which has been matched to the Demand Route from other Transport Capacity which may be on the same road at the same time. In a low-tech, lower function incarnation, this would simply be a placard sticker with a fixed ID number.

As the Transport Capacity comes within a readable distance ("20 meter display"), the Route ID Display would show the particular Demand Route information and/or other Identification information (Personalized Route ID Information), for example, the

Nickname(s) of the Rider(s) being picked up, the Destination Point(s) of the Demand Route(s), and the like.

As Transport Capacity approaches the Pick-up Point, the Driver would position the vehicle at the Pick-up Point, and optimally the Driver would be presented with a picture of the Rider(s) and the identification name of each Rider ("Nickname"). If the Rider does not match their picture, the Driver would choose to refuse the shared ride, and would submit, through the Driver Software Interface, the reason for denying the ride. (At this point, an operator of the Shared Transport Marketplace 12 would attempt to contact the Rider through the information provided with their registration details to see if there was a human error or to see if the Rider's GPS Phone had been stolen, in order to disable future Shared Transit Services).

Upon a match-up of Rider and Driver, Rider would enter the Transport Capacity vehicle ("In Process Journey"). The Shared Transit Marketplace 12 would then optimally verify, through the location information in the Sat Nav Tracker and in the GPS Phone, that the Rider and Driver were indeed at the same location. If the Driver 13 left the Pick-up Point area without picking up the Rider 10 (the Shared Transit Marketplace 12 could know this due to the divergence in location information between the GPS Phone 11 and the Sat Nav Tracker), the Shared Transit Marketplace 12 would send messages to the Driver 13 and Rider 10 verifying that this was their intent; for example, if the Rider 10 had suddenly changed their mind, perhaps to go back to their house to get their wallet. However, if the Demand Route was still needed, the Rider 10 and Driver 13 would be queried on their next action; for example, if the Rider wished to re-submit their Demand Route request, etc. In that case, the Rider's request would receive higher

prioritization in the event there is a queue of Riders at the same location, so that the Rider would not have to return to the end of the queue.

When the Driver 13 approached the Rider Destination, and possibly at points along the way, the Rider 10 and Driver 13 would be polled for their location information to verify that the ride was progressing. Processing and communications could be done either locally (via near-field communications inside the Transport Capacity vehicle using software in Driver Software Interface and Rider Software Interface, via communications technologies such as Bluetooth, 802.11, RFID or their equivalents) or via network polling to Sat Nav Tracker or GPS Phone, or a combination thereof.

An alternative method of verification of Ride Sharing would be to use the establishment of near-field communications as the primary consideration for determining start point of ride sharing experience, and use the breaking of this near-field communications between the Sat Nav Tracker and the GPS Phone (in cases other than power-off or reset of devices) to establish the verified termination point of the journey.

Important aspects of the above system that were not mentioned in the above narrative: Trusted Drivers and Trusted Riders are a large part of the viability of any Shared Transit System. In order to improve on the quality of this trust, and to provide security assurance to Riders and Drivers, certain behaviors would prompt alert conditions, especially those related to security or safety. For example, when a Demand Route is established which results in an In-Process Journey which is terminated before or at a different point than the established Destination Point, this information is logged and can further be used to generate, for example, automated phone calls to verify the intent of the Rider & Driver, including pass codes ("Favorite Color") which would be

established upon user registration. If a Rider or Driver was unable to verify their Favorite Color, human intervention and responses and queries (from Network Operators, optimally, at a Network Operations Center (15), as shown in Figure 1) could escalate the situation response as appropriate.

The network system may also be provided with the following capabilities.

Real-time Self-correcting network redundancy elimination:

System feedback to a driver that another public vehicle or shared transit vehicle is available within set criteria (with destination < 1/4 mile of his, with 0/1 transfers, with max of 3 minute wait). If interested, the driver would receive the location/directions to a car park that is in-route.

Period benefit cost/time analysis:

System log periodically (weekly/monthly, for example) compares transit network availability with actual usage data from an in-car navigational unit and provides a trip-by-trip summary of which trips would have benefited through use of the Shared Transit Marketplace, what the cost/time savings would have been if the user had dropped their car at a Park & Ride; also, what the EARNINGS would have been if the user had picked up available fares (plus/minus 5 minutes); also, generic trip data about the average speed, journey time, CO₂ generated and gas consumed.

Additionally, network capacity demand can be used to calculate any possible public subsidy benefit that can be awarded to potential drivers in exchange for their availability on their normal transit routes.

Identity Verification system:

Personal communications device shows the picture and name identification of the driver responding to pickup request.

Identity Verification system:

Service Provider (Driver) display shows the picture of the Rider 10 (service requester in case of cargo or concierge) requesting pickup service.

Verified Found Lost items:

If a Driver 13 identifies lost items, the network can generate real-time message (SMS or e-mail for example) identifying lost luggage and inviting Rider to call; if no return call, driver returns any found items to any service depot, which bags, labels, barcodes and scans any items returned, sends a message to Rider using any available means (e-mail, SMS, voice message).

Verified Lost items:

If a Rider identifies a missing item, the network can generate real-time message (SMS or e-mail for example) asking the Driver to check and inviting the Driver to call for immediate return; if delayed realization or no return call, dispatcher calls driver and requests for verification of lost items and to return such lost items to service depot. Rider is notified of Driver's response.

Friends & Family Transit network.

The Network System allows users to tag drivers as "friends and family" post ride, over the web in displays of private network drivers, or through e-mail opt-in. Additionally, communities of users can be identified, such as parents of students at a given school, or students, faculty and staff of a university.

These "friends & family" designations would become part of the criteria used to rank available drivers and riders, where the rider or driver has a preference. Similarly, a rider or driver can tag the other as "not again", which will rank these alternatives lower or out of the system.

Scheduled rides confirmation:

For rides which are pre-scheduled, software on the user device or through the network software will offer periodic warnings and require confirmation from a Rider 15 minutes in advance of pickup, then again five minutes before pickup. The Rider has the option to delay or cancel pickup. The Driver is not routed off course or dispatch information sent until and unless rider confirms such pre-scheduled intent.

User also notified 30 seconds before pickup, with picture or description of vehicle:

The Vehicle 16 has a display system, visible from the outside of the vehicle, which indicates the destination code and Rider they are picking up.

The invention thus provides a network system that has the following advantages which have benefits to the area of public transport:

A. A matching system for transportation capacity with transportation demand. The System maintains a matrix of journey time and cost estimates for the most common nodes (one node for each 1,000 people population, essentially), for a country the size of Ireland, about 4,000 nodes, essentially. Next available capacity between each of these nodes is listed (up to first 50).

B. A passive monitoring system for generation of usage/demand data for point-to-point routing of participating vehicles. System looks for overlaps of capacity and seeks to eliminate redundant capacity (within certain distance criteria, transfers criteria

and timing criteria) by suggesting route changes. Also, this data reporting and analysis can be used to suggest the generation of new routes, or on-the-fly routes, for public transport when enough demand capacity exists to create transport routes which bypass crowded city centers or, minimally, can skip stops on an existing route (generating express routes by selecting appropriate Riders to get on the transport capacity).

C. A passive monitoring system for generation of traffic flow data; combined with a central information repository, gives real time network for traffic flow throughout a metropolitan area

D. A system to generate available route capacity, timing on heavily trafficked routes. Stochastically generated, statistically significant effective capacity schedule.

E. A system to process traffic patterns over time to determine where bottlenecks would benefit most from HOV lanes or other rapid transit

F. A system to generate demand for excess capacity: automated and periodic e-mails to users to inform them of cost, availability, scheduling and timesavings of shared transit solution.

G. A system for generating verifiable shared transit status of vehicles

H. An accounting & trading system to track the carbon savings of shared transit network for use in resale of carbon credits to carbon polluters

I. An accounting system for generating verifiable shared transit status of vehicles, to enable tax credits and pre-tax benefits of car payments, as well as providing statistics for any possible mass transit subsidy benefits.

J. A routing system for generating revenue for on demand, on-the-fly shared transit vehicles.

K. A codification system for determination of minimal transit points for maximum market reach.

L. A system for matching dispatch of appropriate-sized vehicle capacity with just-in-time transit market demand.

M. A trust system for managing networks of Drivers with varying trust characteristics

N. A self-correcting trust system for feedback of Rider response to Driver performance

O. A self-correcting trust system for managing Driver preferences of various Riders

P. A professional transit network revenue/load maximization system through dynamic allocation of vehicle size and frequency

Q. A notification of real-time alternative transit to Driver - system contacts a Driver periodically to let them know of superior transportation options (express train, other shared transit vehicle, and the like).

R. A refinement of Shared Transit Marketplace to include not only actual available routes but also additional typical transport availability in that day-part and that season based on stochastic models (to improve the user experience and help their decision making).

S. A route ID Display device, positioning and utility

T. A modification of the above system to allow it to be used to transport goods and merchandise by replacing the Rider with a Shipping and Delivery function, but otherwise using a similar Shared Transit Marketplace.

U. The Driver can also be driving a bus (whether a private or public transport service), a taxi, and the like.

Referring to Fig. 2, the transport capacity computing and communications components of the network system include components for (1) location and direction, many of which can supplement the locational accuracy where GPS technology is not functional or is less desired (for example, underground transport forms would be more likely to use fixed position "markers" to determine the location of the transport capacity, and in the same underground transport situation, the GPS Phone would ideally be equipped with 802.11b technology and a reference database of positional location of underground wireless 802.11b broadcasting devices in order to determine location and facilitate data communications); (2) Far-field communications list some of the communications methods used to facilitate interaction with the Shared Transport Marketplace; (3) Near-field communications detail methods would could be used to communicate between Rider and Driver computing/communication devices (preferred in order to reduce data congestion and airtime charges); (4) supply routes include those information sources and database of commonly used and widely known location names that will feed the Shared Transport Marketplace with available and potentially available transport capacity from the Driver and public transport sources; and (5) Demand route, which includes several possible methods of requesting a route by a Rider. The devices and inputs used by each of these five components are as listed.

Referring to Fig. 3, the rider technology components of the network system include components for (1) Location, that is, several methods for determining the exact position of the Rider for communication to the Shared Transport Marketplace; (2)

Location transmission, that is, the interface that the Rider uses to transmit his Demand Request; (3) Computing Component, that is, the device that the Rider uses to transmit his Demand Request; (4) Internet, that is, either the broad Internet or a limited Intranet which enables the data transmissions between the Shared Transport Marketplace and the Rider; and (5) Demand Route, which includes many of the databases and the pricing and membership models which enable a given Rider to take advantage of a variety of possible types of Transport Capacity. In addition, the devices and inputs used by each of these five components are as listed.

Referring to Fig. 4, the multiple uses and operations of the network system are shown graphically and include components for (1) Supply Side Routes, which include the databases of providers of shared transport services, (2) Demand Side Routes, which include a subset of possible methods for a Rider to request a Route, (3) Data Communications Methods, which specify the variety of methods which could be used to communicate between the Rider, Driver, and the network system.

Referring to Fig. 5, the experiences of a rider in using the network system is shown graphically and are believed to be self-explanatory. The experiences may be stored in memory and printed out. The accompanying flowchart, Fig 5a., shows the typical rider experience in a graphical manner.

Referring to Fig. 6, the experiences of a Driver in using the network system is shown graphically and are believed to be self-explanatory. The experiences may be stored in memory and printed out. The accompanying flowchart, Fig. 6a, shows a typical driver experience in a graphical manner.

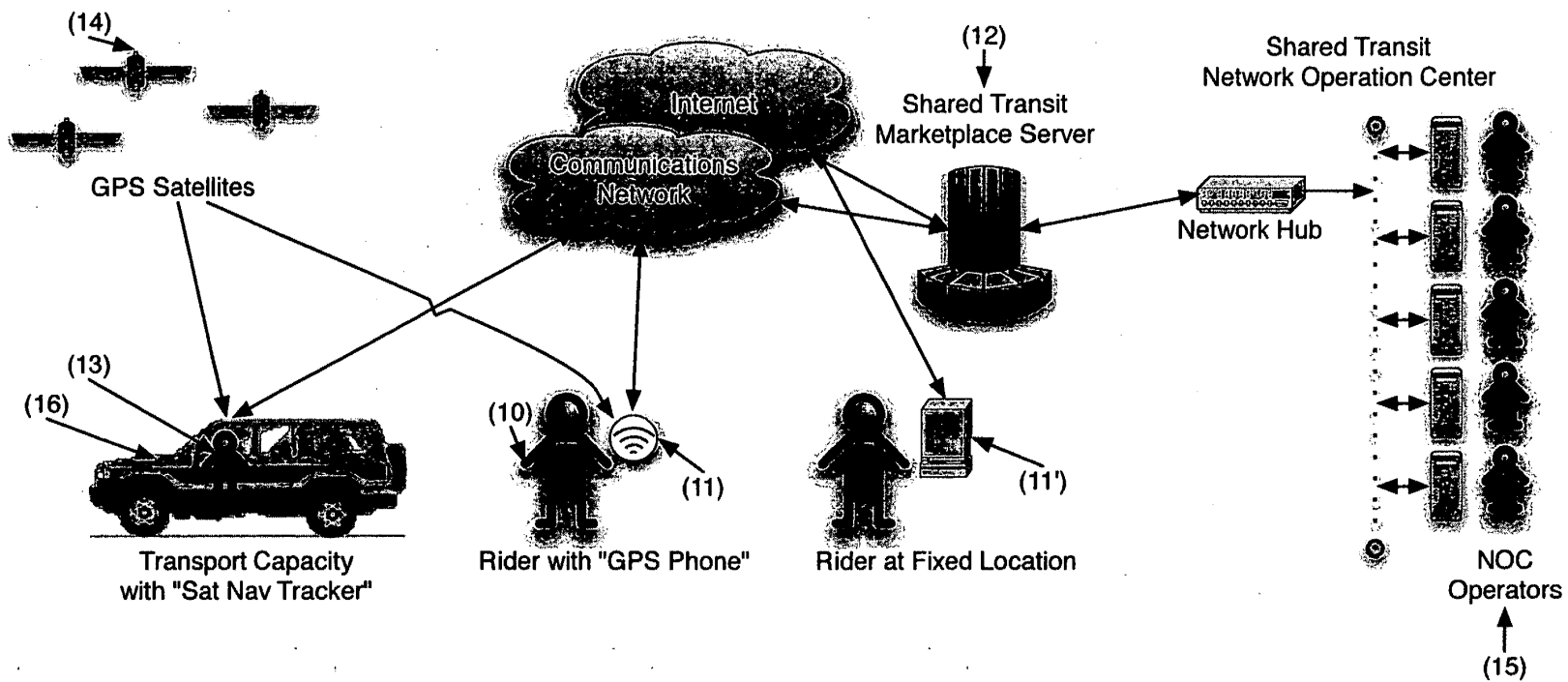


Figure 1. Far field communications, typical configuration.

Figure 2: Transport Capacity Computing and Communications Components

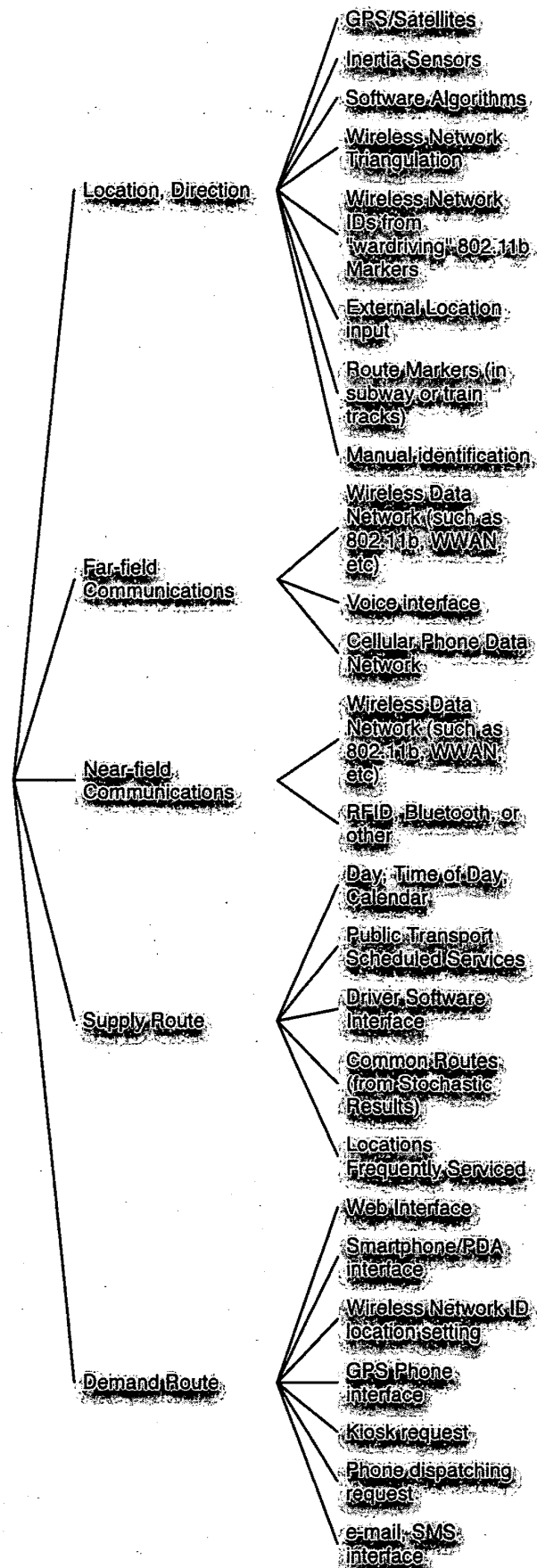


Figure 3. Rider Technology Components

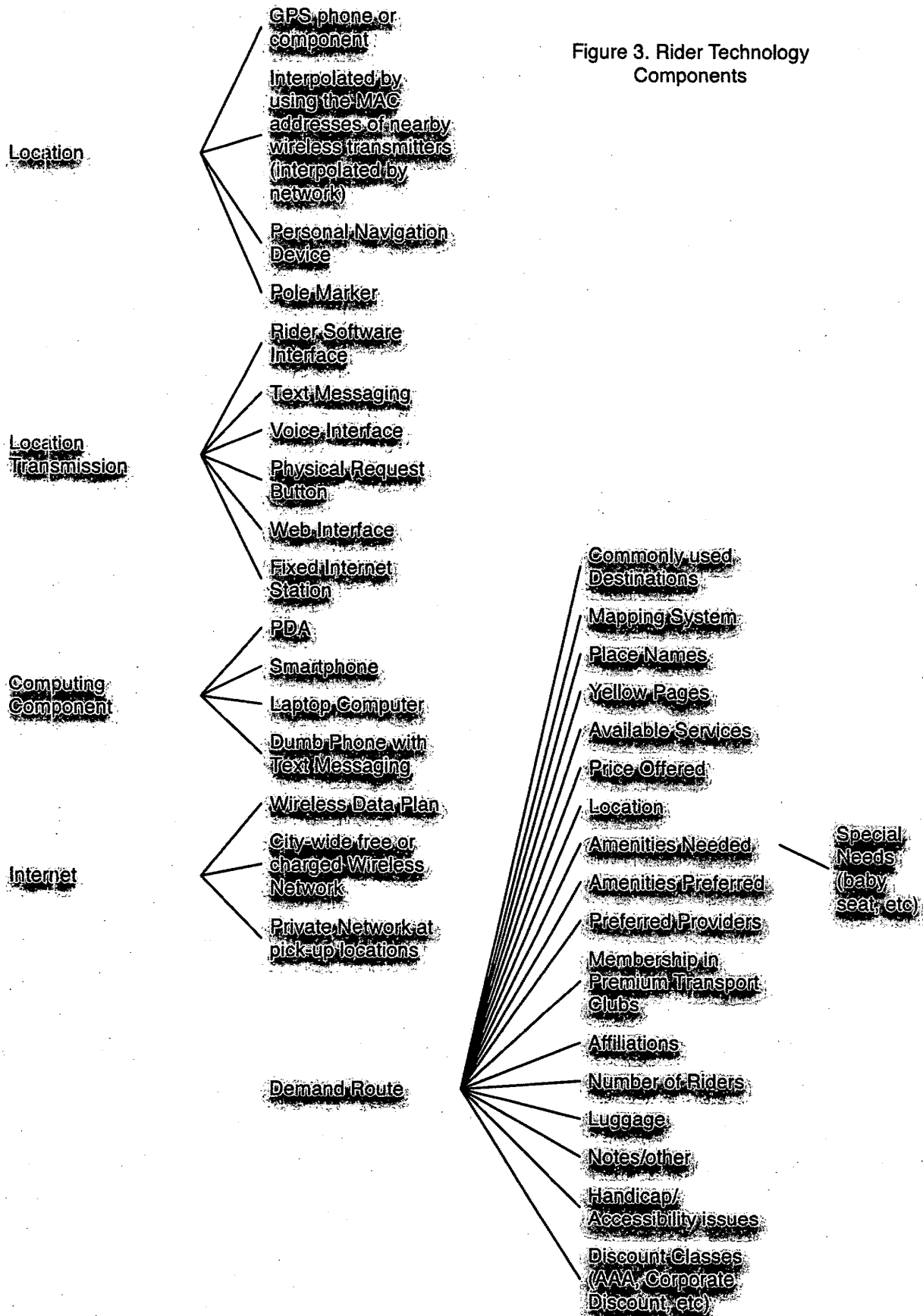
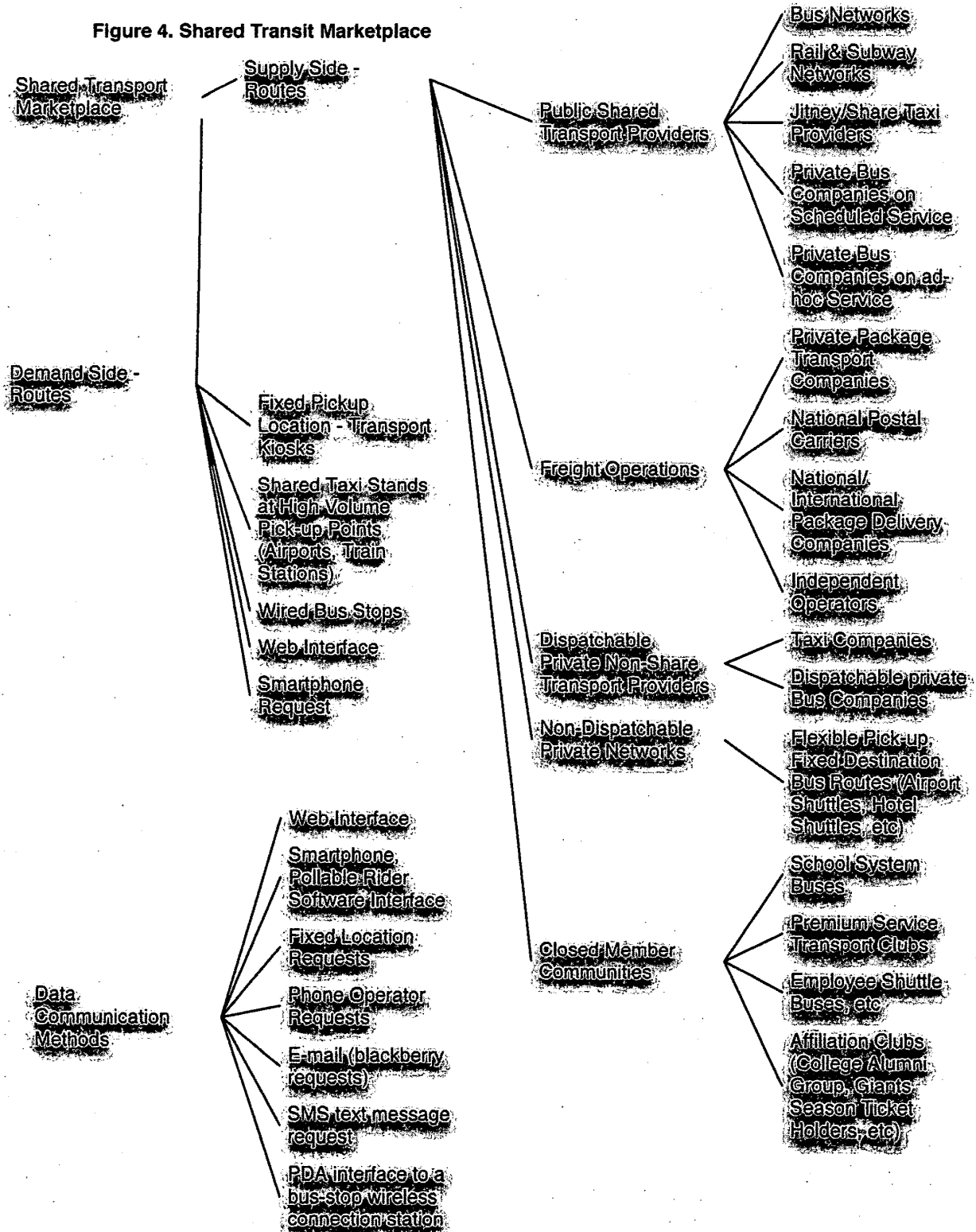


Figure 4. Shared Transit Marketplace



```

graph TD
    RE[Rider Experience] --> FDR[Formulate a transport demand request]
    RE --> RS[Review Supply Routes]
    
    FDR --> PUP[pick-up point]
    FDR --> DP[destination point]
    FDR --> NP[number of passengers]
    FDR --> AM[amount of materials (freight, luggage)]
    FDR --> SN[special needs (accessibility, baby transport, etc)]
    FDR --> R[restrictions, if any (price limits, time limits)]
    
    RS --> S[Sort or exclude by cost, level of service, arrival time, number of transfers]
    RS --> BR[Book a route]
    
    S --> GA[Go to Airport 2 px 2 bags]
    S --> GS[Go to 28 Serrano]
    
    BR --> DNR[Do nothing (or)]
    BR --> CR1[Cancel request]
    
    DNR --> PPS[Position self for pick-up at pick-up point (or)]
    DNR --> CR2[Cancel request]
    
    PPS --> ECR[Error Condition: rebook ride]
    
    ECR --> EV[Exit Vehicle]
    ECR --> RBN[Receive Billing Notice]
  
```

**Figure 5a:
Typical Rider
Experience**

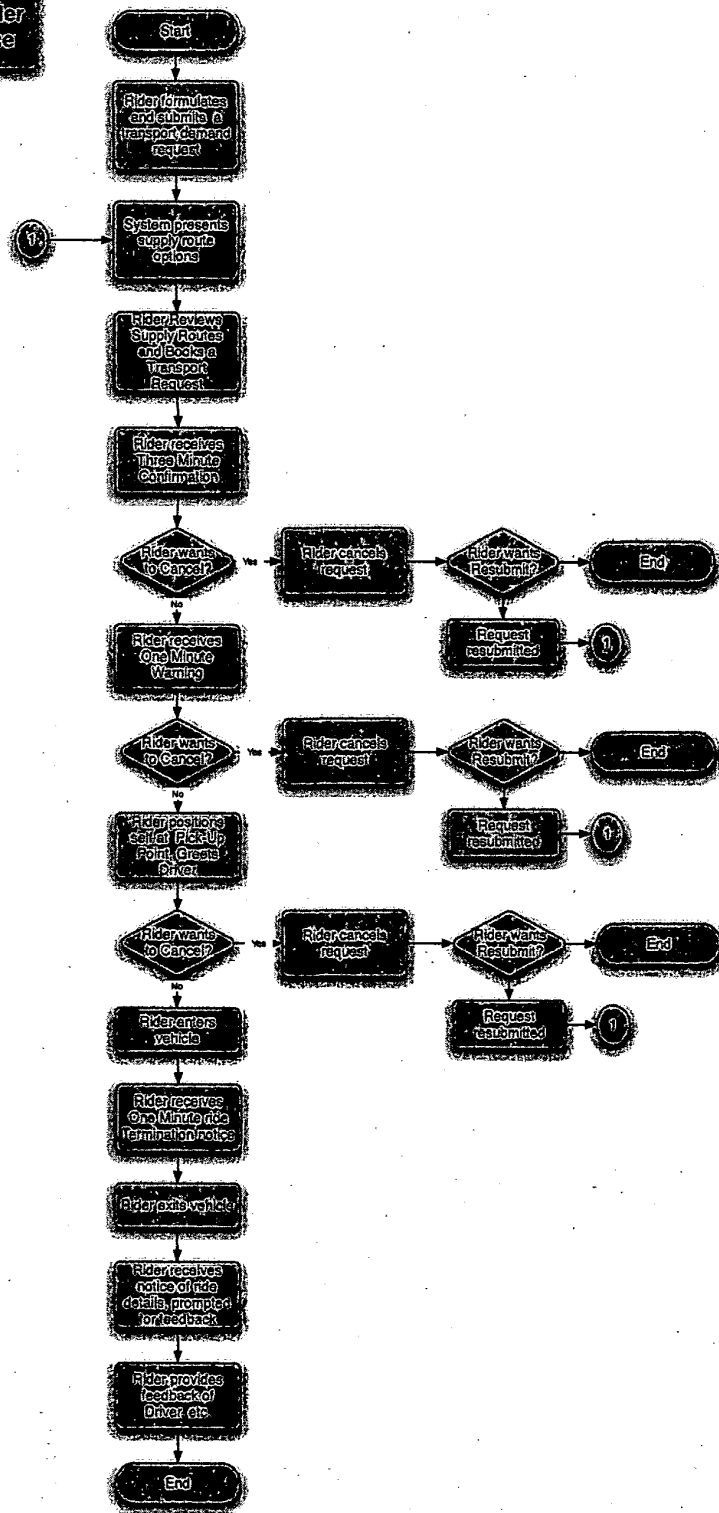
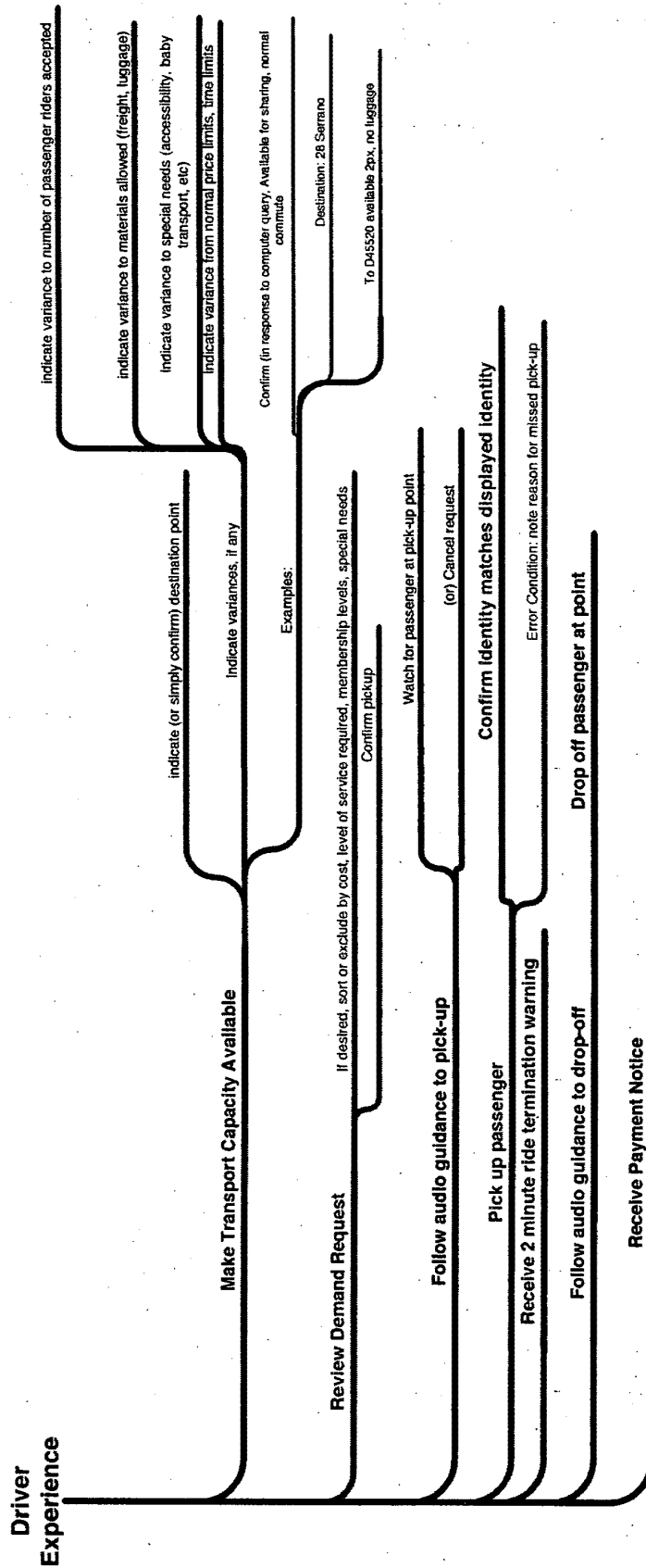


Figure 6. Driver Experience



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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO.	TOT CLAIMS	IND CLAIMS
60/900,808	02/12/2007		100	514810.1		

CONFIRMATION NO. 4255

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Applicant(s)

Sean O'Sullivan, Kinsale, IRELAND;

Power of Attorney:

Francis Hand--22280

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Projected Publication Date: None, application is not eligible for pre-grant publication

Non-Publication Request: No

Early Publication Request: No

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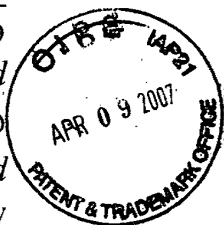
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Filed: 2/12/07
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