Dallas Area Rapid Transit
Mobility On Demand Sandbox Project

Mobility On Demand Working Group

April 16, 2018

Ralph Zaragoza, Project Manager
Dallas Area Rapid Transit
Agenda

SANDBOX Update
- Vision for Sandbox Shared Mobility
- Current Status of Technology Improvements
  - GoLink Sandbox Pilot Results

SANDBOX Optional Topics
- Sandbox as an expansion platform
- Building a regional roadmap
- Examples investment themes
- Detailed example of a theme
- Budget Options for Expansion
- How do we move forward
The Sandbox Mobility Vision
CONTINUOUSLY IMPROVE THE TRANSPORTATION EXPERIENCE

A seamless and user-friendly solution for public and third party mobility transport options with a one-touch payment solution.

GOALS
+ Increase number of riders
+ Increase frequency of rides per user
+ Increase revenue per ride
+ Increase customer satisfaction
+ Engage directly with customers via GoPass++
EXPAND THE REACH OF PUBLIC TRANSPORT

Lower the cost and expand the reach of public transportation to provide high quality, first and/or last mile services.

GOALS
+ New riders from previously unserved areas
+ Lower trip costs compared to existing alternatives
+ Simple and quick integration of new first/last mile solutions
+ Fast ramp-up of services in new service corridors
ACCESS TO ALL CONSUMERS

Integrate equitable MOD solutions including comparable access for the unbanked, disabled, low income, smartphone challenged customers and typically non-transit customers.

GOALS
+ Improved the Corporate Social Responsibility
+ Increase number of riders from target groups
+ Increase frequency of rides per user
+ Increase off-peak trips
Current Status of Our Project
DART SANDBOX
Completed Elements

**JOURNEY PLANNING**
- Offering on demand services, GoPool, GoLink and MoBike, as alternatives to public transport where available
- DART ticketing platform integrated to SpareLabs and DoubleMap for real-time offers

**APP SMART-SWITCH**
- Deep links to GoPool, GoLink (and MoBike) from GoPass
- Using meta-data from GoPass to deep link into other apps

**PAYMENT API**
- User’s GoPass wallet available as a payment instrument to 3rd party apps
GoPass 2.0
“New Look”
GoPass 2.0
Tickets Samples
Retail Network
Cash to Mobile

PayNearMe

To complete your payment to DART Staging:

- Go to a participating 7-Eleven store.
- Tell the cashier you want to pay at least $5.00.
- Press the ‘At Cashier’ button.
- Ask them to follow the steps on your phone.
- Get your receipt and we’ll notify DART Staging of your payment!

AT CASHIER

ADD FUNDS USING CASH

Pay with cash at a nearby store.

ADD FUNDS USING DEBIT/CREDIT CARD

Pay with your debit or credit card.

7-Eleven
75089
3509 Lakeside Pkwy
Rowlett (972)2463-1250

HEAVEN FOOD CHECK CASHING
345 N Country Club Rd
Garland (972)494-3292

7-Eleven
7818 Rowlett Rd
Rowlett (972)973-9210

BEVERAGE CITY
4400 Bass Pro Dr
Garland (972)226-6450

SUNNY S MART
1539 E 130
Garland (972)226-1244

CLIFF S C.C. STORE

DART
let’s go.
Integrated Ticketing and Payment
Integrate Trip Planning
Southern Sector Mobility on Demand Zones

- Full Service February 26
- 2 Vehicles - Kleberg
- 1 Vehicle each - Rylie & Inland Port
Plano Mobility on Demand Zones

- **LEGACY**
  - Lunch Service Available Now
  - Full Service March 26
  - 2 peak vehicles

- **FAR NORTH PLANO**
  - Full Service August
  - 4 Peak Vehicles

- **NORTH CENTRAL PLANO**
  - Full Service March 12
  - 3 peak Vehicles

- **Northwest Plano PNR**
TapRide App: Customer Interface

Trip locations can be selected by map or address

Selection by pointing at the service map
How Did GoLink Work in the Field on Early Field Test?

- Pilot test began on Oct. 2nd and includes 2 stops at Toyota, 1 stop at Legacy West, and 3 stops at Shops at Legacy
- Service operates to designated stops only – not to entire zone
- Weekdays 11am-2pm
- 3 vehicles in operation
- 247 active accounts from Toyota employees
Legacy Lunch Field Test Program
*Ridership Summary October through January*

<table>
<thead>
<tr>
<th>Month</th>
<th>Service Days</th>
<th>Total Trips</th>
<th>Total Riders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oct-17</td>
<td>22</td>
<td>262</td>
<td>682</td>
</tr>
<tr>
<td>Nov-17</td>
<td>20</td>
<td>225</td>
<td>625</td>
</tr>
<tr>
<td>Dec-17</td>
<td>20</td>
<td>331</td>
<td>1,165</td>
</tr>
<tr>
<td>Jan-18</td>
<td>21</td>
<td>365</td>
<td>1,055</td>
</tr>
</tbody>
</table>
Legacy Lunch Pilot Program
*App Usage, Average Riders & Cost/Trip October through January 2018*

<table>
<thead>
<tr>
<th>Month</th>
<th>% of Riders Using App</th>
<th>Riders/Trip</th>
<th>Passengers per Veh Hr</th>
<th>Cost/Passenger</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oct-17</td>
<td>69%</td>
<td>2.60</td>
<td>3.46</td>
<td>$13.57</td>
</tr>
<tr>
<td>Nov-17</td>
<td>88%</td>
<td>2.78</td>
<td>3.47</td>
<td>$13.46</td>
</tr>
<tr>
<td>Dec-17</td>
<td>98%</td>
<td>3.52</td>
<td>6.47</td>
<td>$7.22</td>
</tr>
<tr>
<td>Jan-18</td>
<td>99%</td>
<td>2.90</td>
<td>5.60</td>
<td>$8.37</td>
</tr>
</tbody>
</table>
## Legacy Lunch Pilot Program

*Operating Statistics from Wednesday 1/24/18*

### From TapRide daily statistical report

<table>
<thead>
<tr>
<th>Measure</th>
<th>Wed 24 Jan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trips Requested</td>
<td>43</td>
</tr>
<tr>
<td>Cancellations</td>
<td>12</td>
</tr>
<tr>
<td>Trips Completed</td>
<td>31</td>
</tr>
<tr>
<td>Passengers on Completed Trips</td>
<td>108</td>
</tr>
<tr>
<td>Average Response Time (Request to Pickup)</td>
<td>6:28</td>
</tr>
<tr>
<td>Average Travel Time</td>
<td>7:57</td>
</tr>
</tbody>
</table>
Lunch Service Heat Map 11-Noon
Week of 1/15/18
Lunch Service Heat Map Noon-1
Week of 1/15/18
Average Daily Ridership

Average Daily Ridership
Before – After MOD Implementation

*No Service Prior to MOD

Before | March-Wk4 | April-Wk1
--- | --- | ---
Inland Port | 2 | 11 |
Ryle | 8 | 10 |
Kleberg | 8 | 37 |
NC Plano | 79 | 107 |
Legacy | 47 | 116 | 121
Ridership by Time Quadrant

Ridership by Time of Day

Before 9am
- Rylie: 31
- Inland Port: 35
- Kleberg: 103
- Legacy: 158
- NC Plano: 307

9am to 3pm
- Rylie: 17
- Inland Port: 3
- Kleberg: 34
- Legacy: 120
- NC Plano: 307

3pm to 7pm
- Rylie: 29
- Inland Port: 18
- Kleberg: 67
- Legacy: 126
- NC Plano: 188

Beyond 7pm
- Rylie: 0
- Inland Port: 1
- Kleberg: 9
- Legacy: 15
- NC Plano: 37

Total Riders: March 26 – April 10
Rylie

Total Daily Ridership Vs. Average Wait Times

<table>
<thead>
<tr>
<th>Date</th>
<th>Ridership</th>
<th>Avg. Wait Time</th>
<th>Linear (Avg. Wait Time)</th>
</tr>
</thead>
<tbody>
<tr>
<td>26-Mar</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27-Mar</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28-Mar</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29-Mar</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-Mar</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-Apr</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-Apr</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-Apr</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-Apr</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-Apr</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9-Apr</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DART let's go.
North Central Plano

Total Daily Ridership Vs. Average Wait Times

<table>
<thead>
<tr>
<th>DAILY RIDERSHIP</th>
<th>AVG. WAIT TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>26-Mar</td>
<td>100</td>
</tr>
<tr>
<td>27-Mar</td>
<td>120</td>
</tr>
<tr>
<td>28-Mar</td>
<td>100</td>
</tr>
<tr>
<td>29-Mar</td>
<td>120</td>
</tr>
<tr>
<td>30-Mar</td>
<td>100</td>
</tr>
<tr>
<td>2-Apr</td>
<td>120</td>
</tr>
<tr>
<td>3-Apr</td>
<td>100</td>
</tr>
<tr>
<td>4-Apr</td>
<td>120</td>
</tr>
<tr>
<td>5-Apr</td>
<td>100</td>
</tr>
<tr>
<td>6-Apr</td>
<td>120</td>
</tr>
<tr>
<td>9-Apr</td>
<td>100</td>
</tr>
</tbody>
</table>

- **Ridership**
- **Avg. Wait Time**
- **Linear (Avg. Wait Time)**
Legacy

Daily Ridership and Average Wait Times

DAILY RIDERSHIP

AVG. WAIT TIME

26-Mar 27-Mar 28-Mar 29-Mar 30-Mar 2-Apr 3-Apr 4-Apr 5-Apr 6-Apr 9-Apr

Ridership Avg. Wait Time Linear (Avg. Wait Time)

DART - let's go.
Reservation Type

<table>
<thead>
<tr>
<th>Reservation Type</th>
<th>Rylie</th>
<th>Inland Port</th>
<th>Kleberg</th>
<th>NC Plano</th>
<th>Legacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>App</td>
<td>43%</td>
<td>33%</td>
<td>49%</td>
<td>52%</td>
<td>15%</td>
</tr>
<tr>
<td>Call-In</td>
<td>57%</td>
<td>67%</td>
<td>51%</td>
<td>47%</td>
<td>15%</td>
</tr>
<tr>
<td>Flagdown</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
<td>0%</td>
</tr>
</tbody>
</table>

let's go.
High Demand Trip Originations

<table>
<thead>
<tr>
<th>Pickup Location</th>
<th>Requested Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buckner Station</td>
<td>325</td>
</tr>
<tr>
<td>UNT Dallas Station</td>
<td>56</td>
</tr>
<tr>
<td>Amazon Fulfillment Center</td>
<td>6</td>
</tr>
</tbody>
</table>
High Demand Trip Originations

- **Legacy West**
- **Far North Plano**
- **6600 Custer Rd**
- **Parker Rd Station**
- **Toyot HDq**
- **Shop @ Legacy**
- **Legacy**
- **NW Plano P&R**
- **NC Plano**

<table>
<thead>
<tr>
<th>Pickup Location</th>
<th>Requested Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parker Rd Station</td>
<td>643</td>
</tr>
<tr>
<td>Northwest Plano P&amp;R</td>
<td>433</td>
</tr>
<tr>
<td>Legacy West-Mesero Restaurant/Windrose</td>
<td>102</td>
</tr>
<tr>
<td>Toyota HDq (Toyota Financial side) West 2&amp;3</td>
<td>92</td>
</tr>
<tr>
<td>Toyota HDq (Lexus) East 2&amp;3</td>
<td>56</td>
</tr>
<tr>
<td>6600 Custer Rd. Plano TX</td>
<td>16</td>
</tr>
<tr>
<td>Shops @ Legacy - by (Starbucks)</td>
<td>15</td>
</tr>
<tr>
<td>Shops @ Legacy -(Season 52 Restaurant)</td>
<td>12</td>
</tr>
<tr>
<td>Shops @ Legacy-Gordon Biersch</td>
<td>9</td>
</tr>
</tbody>
</table>
Questions
Optional
Sandbox as A Platform for Future Expansion
DART MOBILITY PLATFORM

- RAPID 3RD PARTY INTEGRATION THROUGH DART MOBILITY APIs
- SUPPORT FOR INDUSTRY STANDARD APIs
- INCREMENTAL PLATFORM EXPANSION THROUGH SERVICE MODULES
- STANDARDIZED 3RD PARTY EXPERIENCES INSIDE GOPASS APP
- BEING PREPARED TO SEIZE OPPORTUNITIES AS THEY ARISE

The Optimal Future Platform

EXISTING Platform

- 3rd party mobility apps
- DART Mobility APIs
- Standardised APIs
- Trip Planning Services
- Trip Dispatch Services
- 3rd party payment Services

- Secure Service Gateway
- Ticketing Platform
- Travel Tools Services
- Wallet Services
- Payment API
- Payment providers
Building a Roadmap for Regional Investment in MOD Products
THE ROADMAP

- Built around the high level goals
- Typically broken into Themes
- Approved by the DART and Regional Entity
- Used as input for budget approval
Examples of Investment Themes
THEMES

MOBILITY ON-DEMAND PLATFORM
– Providing a standard set of DART mobility APIs
– Focus on making integration easy for 3rd parties
– Focus on 3rd party taking the burden of the integration efforts
– Growing incrementally with micro-services offered as they become available

FIRST/LAST MILE
– Expand journey planning with first/last mile options
– Fast setup and integration with 3rd parties for trials and evaluation
– Mobility on demand ticket issuing and dispatching inside GoPass
– Automatic activation of mobility on demand services

ON ROUTE EXPERIENCE
– Follow your route on map
– Reminders and alerts for “next steps” on the route
– News ticker for traffic, delays or cancellations
– Real-time re-routing and suggestions for the optimum journey
– Special On Route Tools for Disabled Persons

COMMUTING & OFF-PEAK
– Specific on-demand off-peak journey planning where public transport frequency drops
– Dedicated experiences for on-demand commuting services
– Corporate shuttle service integration as first/last mile

LOYALTY REWARDS
– GoPass loyalty points earned across 3rd party services
– GoPass Wallet QR code as a loyalty identifier
– What’s nearby?

SMART TECHNOLOGY
– ‘Wearables’ and ‘proximity sensors’ for alerts, information and “next step” actions

MOBILITY SDKS
– GoPass Wallet SDK for rapid integration of payment services to 3rd party mobility apps
– DART Mobility SDK rapid integration of features of the DART mobility platform for 3rd party apps
Detailed Example of a Theme Item
ON-ROUTE EXPERIENCE

INSIGHT
Journeys using multiple transport methods can be more complex to execute complete than standard point-to-point trips.

OUTCOME
Improving the trip experience will increase rider loyalty, frequency of riders per user and decrease customer service support.

FUTURE INCREMENTS
– Real-time trip suggestions
– Real-time dynamic traffic re-planning and notifications
– Personalized travel tips
– 3D Mapping of travel path with real time information
Proposed Future Investment Strategy

- **APP developer** creates a dedicated Sandbox team and commits the resources for rolling **6 months**
- **App developer** scales resources up or down in line with the roadmap needs
- **App developer** provides high level estimates on the roadmap for budgeting guidance
- **DART and Regional Partners** approve the roadmap for **6 months**
- **DART and Regional Partners** approve a budget which matches the roadmap goals based on high level estimates
- **DART & Regional Partners and Developer** together form a steering group to approve go-ahead for work within the constraints of the budget and roadmap

SUGGESTED TEAM SIZE OPTIONS FOR BUILDING THE OPTIMAL SANDBOX

- **Minimum size ($1,000,000 annually)**: PM (50%), UI designer (50%), iOS dev, Android dev, Backend dev
- **Medium size ($2,000,000 annually)**: PM, UI Designer (50%), Solution manager (50%), iOS dev, Android dev, Backend dev x 3, QA
- **Large size ($3,000,000 annually)**: PM, UI Designer, Solution manager, iOS dev x 2, Android dev x 2, Backend dev x 4, QA
STEERING GROUP FOR A WAY FORWARD
• Monthly meeting
• Review the project goals/ roadmap
• Update and review the latest backlog
• Update and review the latest estimates
• Review the recent deliveries
• Review the latest KPIs
• Discuss lessons learned since last meeting
Creating a Project

Backlog

Starts with existing ideas/ knowledge/ learnings to create the:

Roadmap: one pager descriptions/ high level estimates

Which is further developed into the:

Backlog: use cases/ UI examples/ detailed estimates

The backlog represents work which can be implemented and delivered according to a plan and a price.

The backlog is implemented, delivered in Increments.
## Example Backlog

<table>
<thead>
<tr>
<th>Increment</th>
<th>Status</th>
<th>ID</th>
<th>Priority</th>
<th>Summary</th>
<th>Cost Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 2018</td>
<td>CLOSED</td>
<td>DART-15</td>
<td>HIGH</td>
<td>Study showing bike share availability on a map</td>
<td>$6,000</td>
</tr>
<tr>
<td>June 2018</td>
<td>CLOSED</td>
<td>DART-16</td>
<td>MED</td>
<td>Add extra dispatch support to mobility platform for Uber</td>
<td>$72,000</td>
</tr>
<tr>
<td>June 2018</td>
<td>APPROVED</td>
<td>DART-17</td>
<td>HIGH</td>
<td>Show bike share availability on a map based on gbfs</td>
<td>$12,000</td>
</tr>
<tr>
<td>July 2018</td>
<td>APPROVED</td>
<td>DART-18</td>
<td>HIGH</td>
<td>Add support for reading NABSA gbfs feeds</td>
<td>$37,500</td>
</tr>
<tr>
<td>July 2018</td>
<td>APPROVED</td>
<td>DART-19</td>
<td>MED</td>
<td>Read and show MooBike gbfs feed</td>
<td>$3,500</td>
</tr>
<tr>
<td>August 2018</td>
<td>OPEN</td>
<td>DART-20</td>
<td>MED</td>
<td>Study on-route notifications for transport switching</td>
<td>$11,250</td>
</tr>
<tr>
<td>August 2018</td>
<td>OPEN</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>August 2018</td>
<td>OPEN</td>
<td>...</td>
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<td>...</td>
<td>...</td>
</tr>
<tr>
<td>August 2018</td>
<td>OPEN</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>
BACKLOG GOVERNANCE

ROADMAP
- The roadmap feeds items to be broken down and added to the backlog

OPEN
- DART requests that Unwire breaks down the roadmap item into use cases and screenshots

PREPARING COST & SCHEDULE
- DART asks Unwire to estimate the backlog item

AWAITING APPROVAL
- DART reviews the backlog item and approves for implementation or rejects

APPROVED
- The item is added to the backlog in the agreed priority and mapped to a delivery

CLOSED
- The backlog item is either delivered or has been rejected
End