Pantonium

Pantonium's On-Demand Transit Platform

Connecting People & Places
Conveniently & Sustainably

Our Mission

To empower cities to operate more efficiently and sustainably by improving public transit access, convenience and flexibility. **Enabling cities to do more with less** .

Conventional Bus Transit

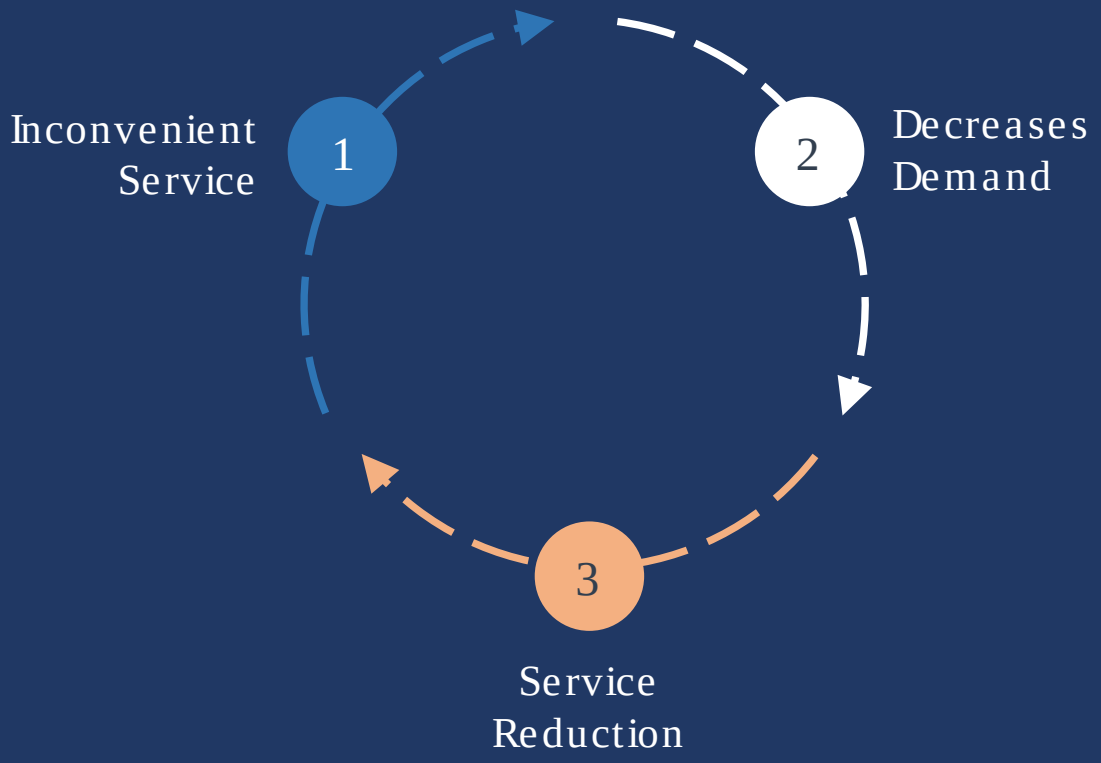
Benefits of fixed route buses

- Efficiently moves masses on high demand routes
- Routine & standard option

Problems with fixed route buses

- Wide geographical coverage expensive
- Relatively Inflexible to uneven demand & density
- Transfers often required

The Cycle of Inconvenience



There is no solution to service low -demand areas efficiently with fixed routes, resulting in a **vicious cycle caused by inconvenience** .

The Pantonium On-Demand Transit Difference:

Other Vendors
Small disconnected zones

Microtransit

Pantonium's On-Demand
One large zone

Macrotransit

Pantonium's proprietary algorithm dynamically routes buses in real-time to achieve:

- **Higher Productivity**
  15-30 RSH
- **Greater Service Coverage**
- **Reduced cost, wait time, ride time, transfers**

How it works .

Schedule Vehicles

Drivers/vehicles are scheduled and activated by transit agency

1

5

Real-time Adjustment

Schedules & routes are dynamically optimized second to second

Book Rides

Riders book rides through different channels

2

ETA

Traffic

4

Drivers Guided

Dynamic schedules are communicated to drivers through their tablets

3

Autonomous Routing

Entire fleet is optimized and routed in milliseconds, automatically

Fixed Route Coordination

Smart Kiosk Integration

Case Study

Sioux Area Metro Transit

Sioux Area Metro (SAM) had been working for a long time to find a better way to deliver Saturday transit service.

The city spent over 7 months studying their bus system to make transit service more efficient and convenient.

On December 19, 2020 , they began piloting a full on-demand transit service on Saturdays.

Problems

Underutilized fixed route buses

- Low ridership on all routes
- Low cost recovery ratio
- Rider complaints on ride times and inconvenience of transfers
- Challenge to cover adequate service area cost - effectively

Project Approach

Average Ridership by ToD & Route

	Routes										
Hours	1	2	3	4	5	6	7	9	10	11	Grand Total
7 AM	2	0	11	3	0	5	9	-	1	0	32
8 AM	3	6	14	11	2	12	20	8	20	5	101
9 AM	3	7	15	10	2	10	13	7	15	7	88
10 AM	5	8	17	11	3	8	15	6	15	10	99
11 AM	5	7	16	13	2	8	15	6	15	9	95
12 PM	5	7	16	12	2	10	18	6	15	9	102
1 PM	4	9	18	11	2	10	17	7	18	8	105
2 PM	5	9	21	11	2	10	17	7	22	9	112
3 PM	6	10	21	11	2	11	17	6	21	9	114
4 PM	4	7	18	11	2	12	16	8	17	8	103
5 PM	3	4	14	8	2	10	14	6	16	6	84
6 PM	3	4	10	6	1	7	9	4	10	4	58
Grand Total	47	78	191	119	22	114	181	71	185	85	1,093

Project Approach

Vehicles required based on ridership

Hours	All Riders	# Vehicles	Riders/VSH All Routes
7 AM	32	8	4.0
8 AM	101	8	12.6
9 AM	88	8	11.0
10 AM	99	8	12.4
11 AM	95	8	11.9
12 PM	102	8	12.7
1 PM	105	8	13.1
2 PM	112	8	14.0
3 PM	114	8	14.2
4 PM	103	8	12.9
5 PM	84	8	10.4
6 PM	58	8	7.2
Grand Total	1,093	8	11.4

Average Saturday		Riders/VSH All Routes				
Hour of Service	Total Riders	8 Buses	7 Buses	6 Buses	5 Buses	4 Buses
7 AM	32	4.0	4.6	5.4	6.5	8.1
8 AM	101	12.6	14.5	16.9	20.2	25.3
9 AM	88	11.0	12.6	14.7	17.6	22.0
10 AM	99	12.4	14.1	16.5	19.8	24.8
11 AM	95	11.9	13.6	15.9	19.0	23.8
12 PM	102	12.7	14.5	16.9	20.3	25.4
1 PM	105	13.1	15.0	17.5	21.0	26.3
2 PM	112	14.0	16.0	18.7	22.4	28.0
3 PM	114	14.2	16.3	19.0	22.8	28.5
4 PM	103	12.9	14.8	17.2	20.7	25.8
5 PM	84	10.4	11.9	13.9	16.7	20.9
6 PM	58	7.2	8.3	9.7	11.6	14.5
Full Day	1,093	11.4	13.0	15.2	18.2	22.8

Project Approach

Assumed OpEx cost reductions

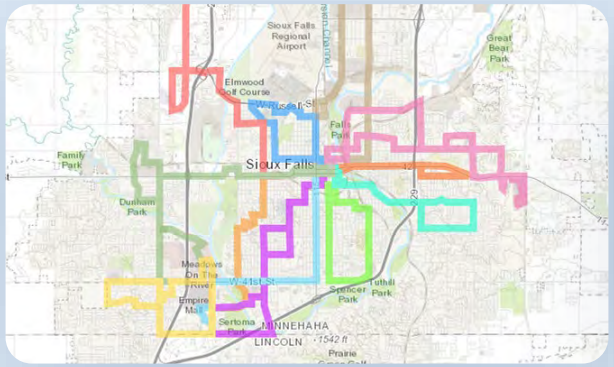
# Buses	Annual SH	Annual $	R/VSH	Trip Cost	Op $ Saved
3	1,872	$ 187,200	30	$ 3.29	$ 312,000
4	2,496	$ 249,600	23	$ 4.39	$ 249,600
5	3,120	$ 312,000	18	$ 5.49	$ 187,200
6	3,744	$ 374,400	15	$ 6.59	$ 124,800
7	4,368	$ 436,800	13	$ 7.69	$ 62,400

- $100/vehicle hour cost
- 12 hours of service per route
- 8 buses baseline service

Case Study

From Fixed To On-Demand

Sioux Area Metro (SAM) saw immediate results with on-demand service.



Original
22 Rides per hour
79% trips require transfer
306 stops covered
45% trips took > 30 minutes
8 buses needed

Pantonium On-Demand	
26 Rides per hour	▲
0% trips require transfer	▼
368 stops covered	▲
93% trips took < 30 minutes	▲
6 buses needed	▼

Customer Data Analysis

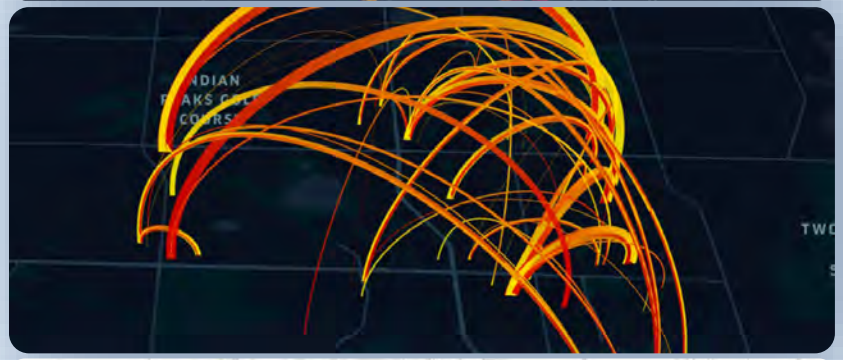
Pantonium’s operations team completes frequent analysis of service performance

Data Analysis Points

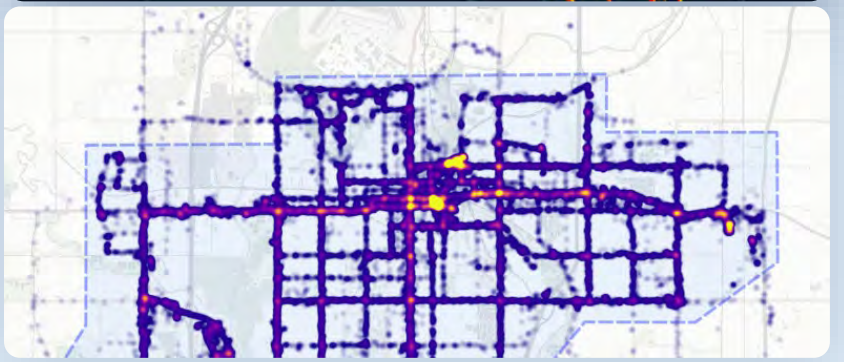
- Stop, time, a travelheatmaps and utilization
- Ridership growth trends
- Rider account &booking source trends
- Driver/operator and vehicle metrics

Utilization

Origin Destination



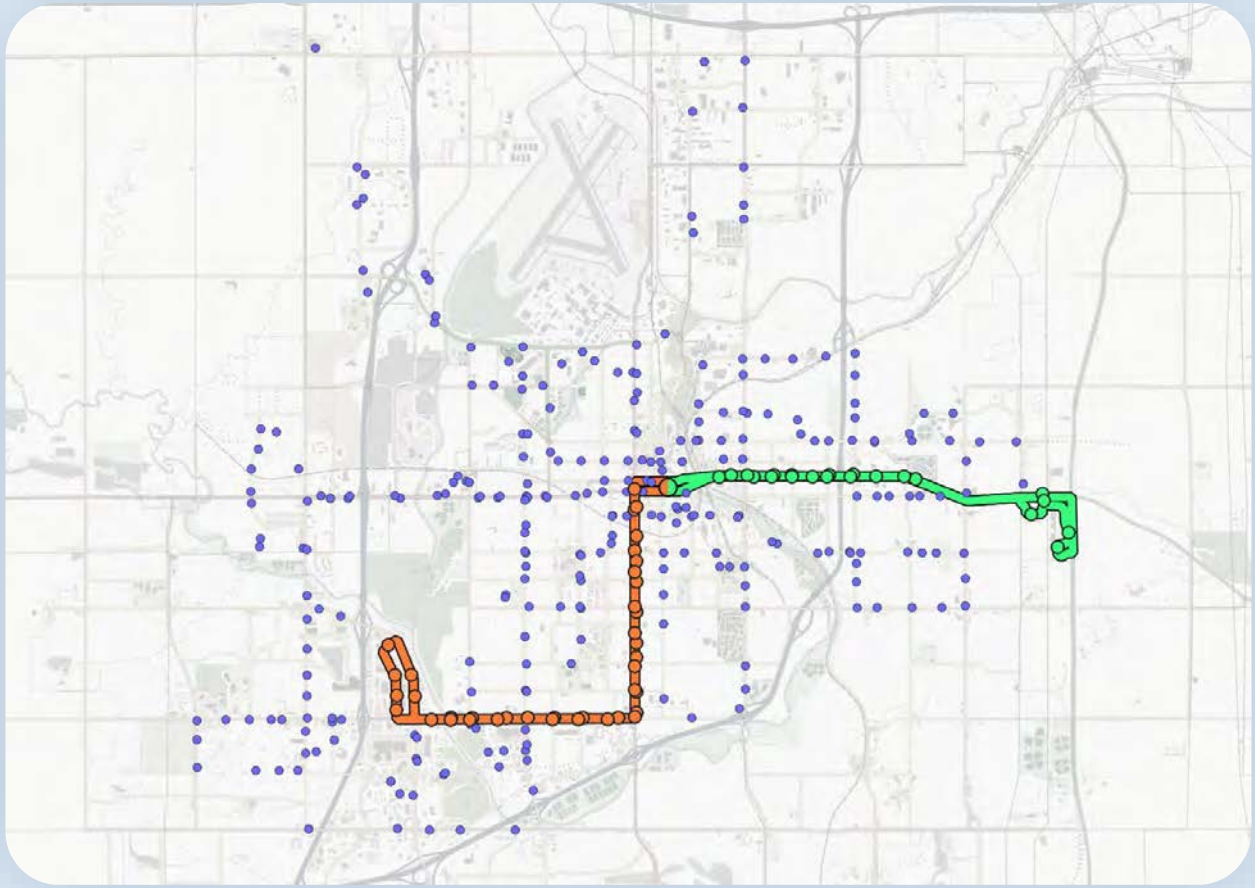
Movement



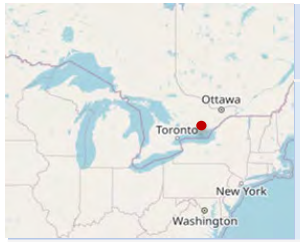
Case Study

Today’s Hybrid Service

After collecting data, surveying riders, and analysing service - Sioux Area Metro introduced two express style fixed routes to service high density core, **with on - demand transit serving the remainder of the city.**



Pantonium deployments deliver outstanding results



Belleville, Ontario

Pop: 50,720

300% Increased Ridership, **462%** Increased Service Area, Cover city with **5 buses** instead of 10
Avg 9-min wait time **, 18-min** ride time, no transfers

Regina, Saskatchewan

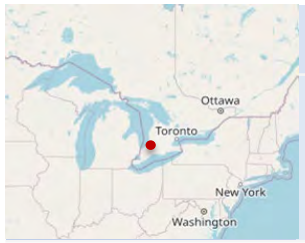
Pop: 228,928

589% Increased service area
Avg 8 -min wait time **, 16-min** ride time, no transfers

Stratford, Ontario

Pop: 31,465

Cover city with **2-4 buses** instead of 8
Saving $300K/year on fuel
Avg 5-min wait time **, 13-min** ride time, no transfers



Sioux Falls, South Dakota

Pop: 190,580

Cover entire city **with 6 buses instead of 8**
Avg 11-min wait time **, 19-min** ride time, no transfers

Lafayette, Colorado

Pop: 28,924

Covered entire city with 2 buses
Avg 5 min wait time, **13 min** ride time, no transfers

Rogers, Arkansas

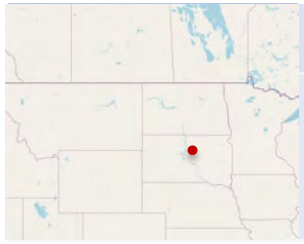
Pop: 67,600

Increased ridership by **44%**
Avg 8-min wait time **, 16-min** ride time, no transfers

St. Albert, Alberta

Pop: 65,589

Reduced trip request call -in volume by **94%**
Avg 4-min wait time **, 14-min** ride time, no transfers



Saskatoon, Saskatchewan

Pop: 273,010

Cover entire city with **1477 stops** in **one zone**
Avg 7-min wait time **, 18-min** ride time, no transfers

Public transit for public good.

Social Benefits

Better access to jobs, healthcare, activities and more.

Belleville, Ontario increased their service area coverage by 70%

Economic Benefits

Provide more service and coverage at a lower cost.

Sioux Falls, South Dakota used 2 less buses to provide more coverage to the whole city.

Environmental Benefits

Material GHG impact on reducing car trips, increasing transit accessibility and usage.

City of Stratford able to save 656KT of Co2 per year equivalent to 280,000 car trips*

*Independent Analysis by Nature Bank

Pantonium
transit that's yours

THANK YOU

MEDIA

Global NEWS

FINANCIAL POST

VICE

CBC news

TORONTO STAR

THE GLOBE AND MAIL

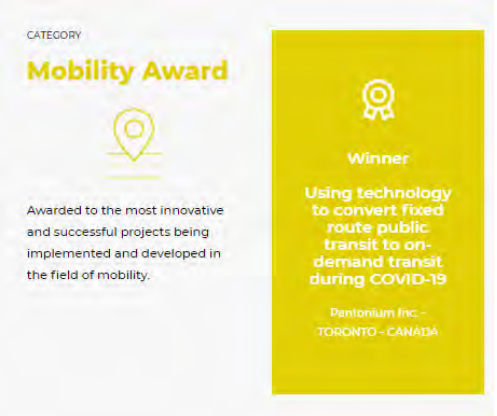
AWARDS

NTT DATA OPEN INNOVATION
CONTEST WINNER

CUTA
INNOVATION LEADERSHIP AWARD

SDTC SUSTAINABLE DEVELOPMENT TECHNOLOGY CANADA
FUNDING AWARDED

SMARTCITY LIVE 2020
BY SMART CITY EXPO WORLD CONGRESS



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APPENDIX

PANTONIUM VIDEO

CUSTOMER TESTIMONIALS