



Tar Heel Bikes

GPS Tracking Data Overview

Agenda

1

Reason for Study

What helpful data can we obtain with GPS analysis?

2

Logistics

How will we implement this study?

3

Risk

What risks does THB assume by moving forward?

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Why perform GPS spatial analysis?

It can help THB determine...

Routes

- Preferred routes
 - Hill avoidance
 - Streets vs. campus paths

Exact Destinations

- Points of interest
- Potential expansion locations

Program Footprint

- Amenities within footprint
- Distance Travelled



Why perform GPS spatial analysis?

Trips Tree - (4 trips)

- Blythe TEST
 - TEST
 - TRU
 - Untitled

Track List

Track Name	Drift Filter	Color	Line Width
Track2014/02/23_20:07	No Drift Detectec	Green	5
Track2014/02/20_12:09	No Drift Detectec	Red	5
Track2014/02/20_13:47	No Drift Detectec	Green	5
Track2014/02/23_16:27	Drift Detected	Red	5
Track2014/02/20_12:09	No Drift Detectec	Green	5
Track2014/02/20_13:47	No Drift Detectec	Green	5
Track2014/02/24_18:07	No Drift Detectec	Green	5
Track2014/02/25_11:53	Drift Detected	Yellow	5
Track2014/02/25_13:46	Drift Detected	Red	5

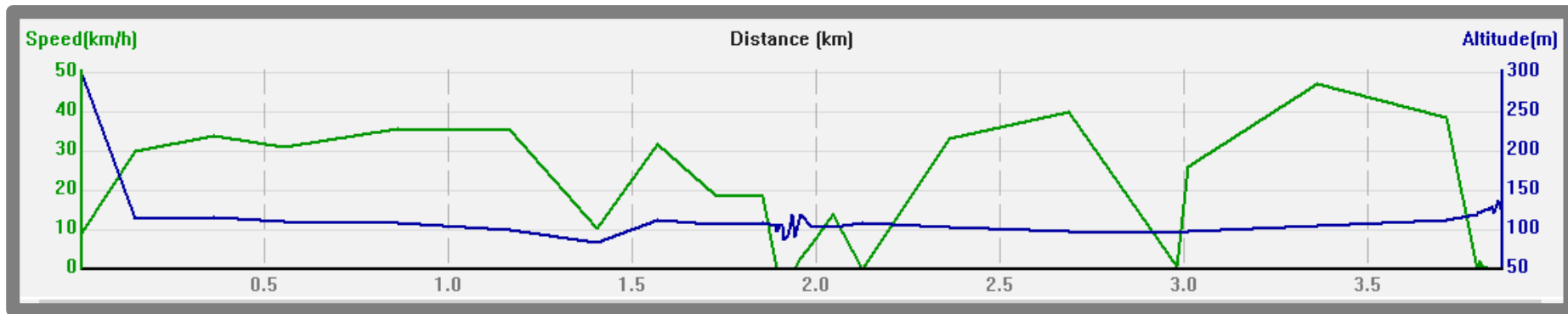
Track properties:

Track Name	Track2014/02/23_20:07
Start Time	2/23/2014 8:07:55 PM
End Time	2/23/2014 10:11:40 PM
Duration	0 Days 02:03:45
Total Distance	3.9 km

Map: Carrboro, NC. The map shows a track starting near W Main St and Pine St, moving east on W Main St, then south on S Greensboro St, and finally east on Airport Rd. The track is color-coded: green for 'No Drift Detected' and red for 'Drift Detected'. Landmarks include the University of North Carolina at Chapel Hill, Battle Park, and the North Carolina Botanical Garden.

Display Time Zone: (UTC-05:00) Eastern Time (US & Can.) Daylight Saving Time

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Capital Requirements and Operations

Affixing to Bikes



\$5.95/unit

x 8 Bikes

\$50.00

+ **\$10.00** zip ties

\$60.00

Replacement Deposit



≈\$100.00/unit

x 8 Units

\$800.00

Charging & Maintenance

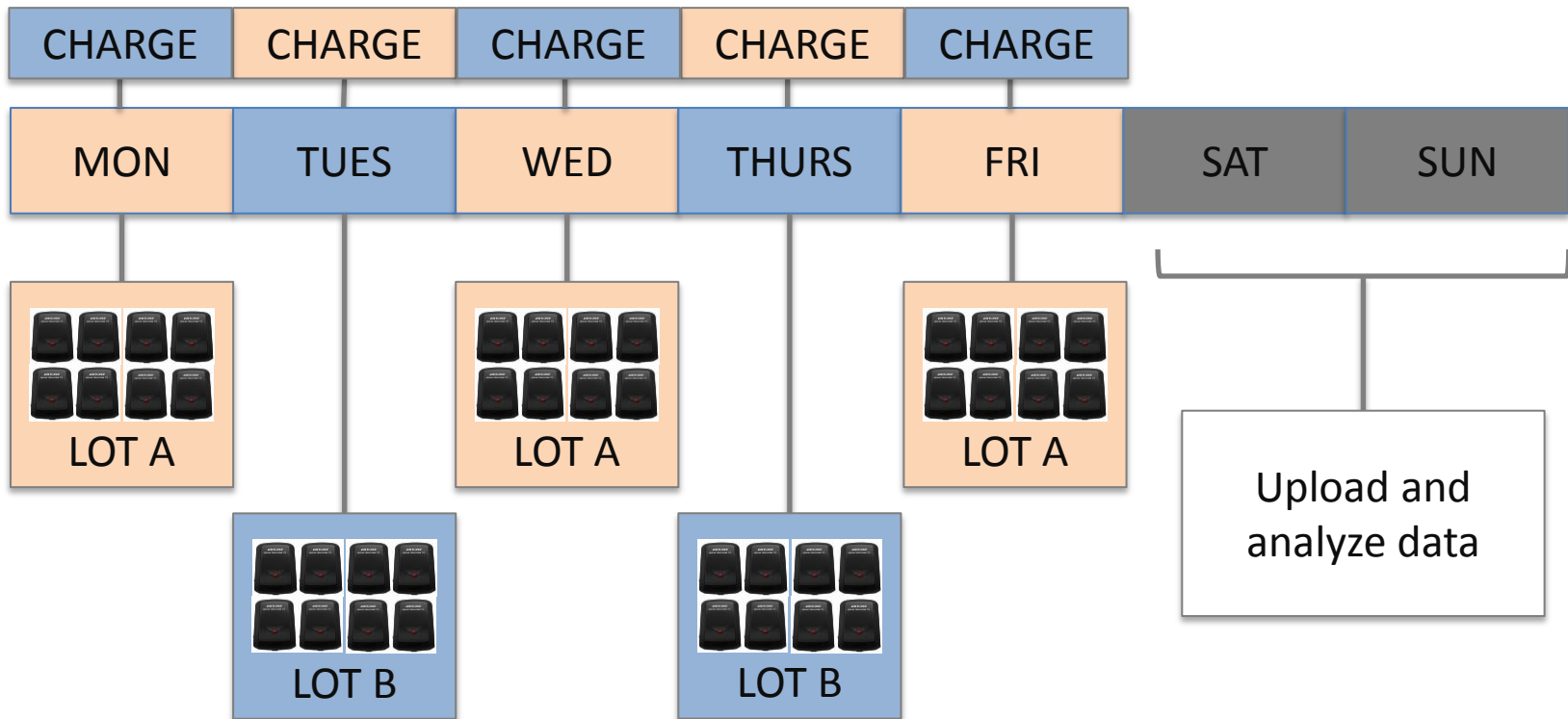
Frequency: every night

Who:

- RHAs:
 - *Obtaining user consent*
- THB members:
 - *Charging GPS units*
- ENST 698 members:
 - *Data upload and analysis*

Research Implementation Plan

Study Timeline: 2 consecutive weeks, late March/early April



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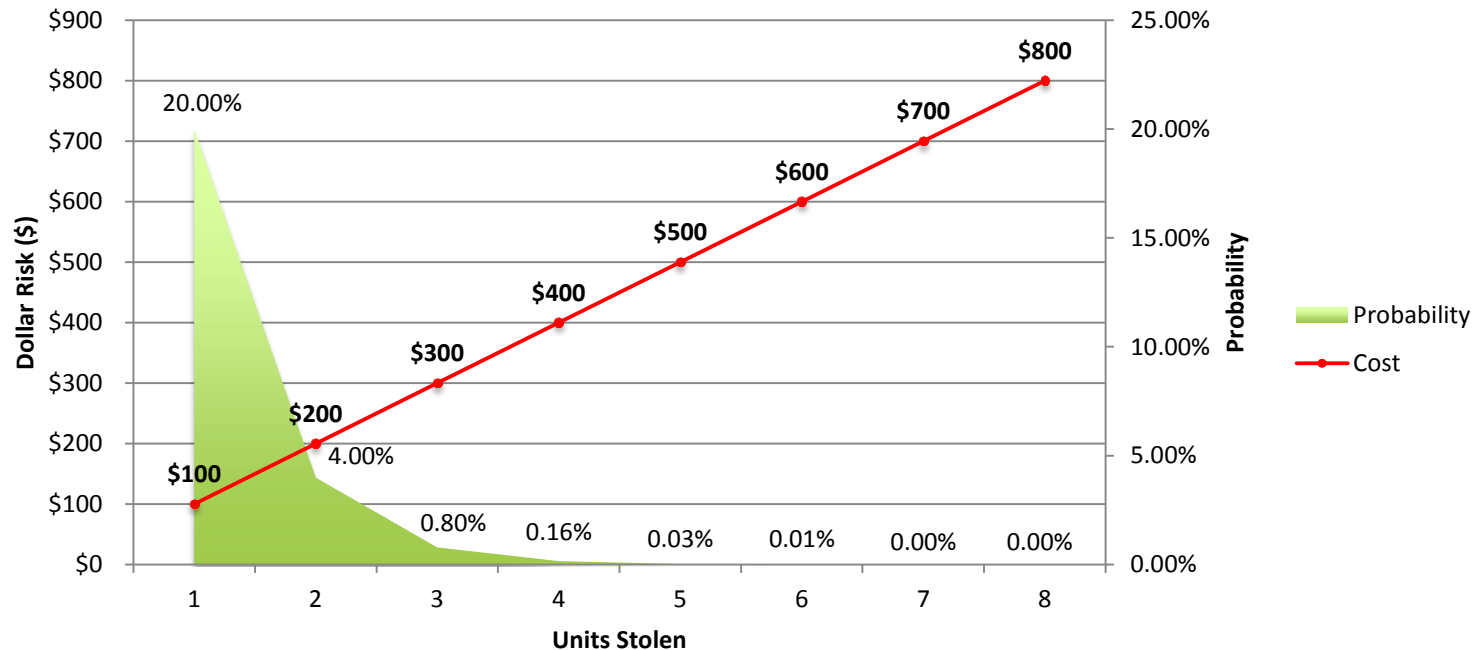
3

Risk

What risks does THB assume by moving forward?

Monetary Risk













GPS Unit - Potential Risk



Assuming a 20%* chance of theft, there is a fairly low risk that ALL units are stolen.

* Value conservatively estimated from National Bike Registry: <https://www.nationalbikeregistry.com/college.html>

Takeaways, Tradeoffs, and Considerations

	SURVEY	GPS
Exact Destinations		
Destinations per Trip		
Reason for Trip		
Program Footprint		
Routes Taken		 *
Cost		

*Team must account for data point drift.