GEO SMART ASIA 2018

Locate
#Locate18

WHEN
9 – 11 APRIL 2018

WHERE
ADELAIDE, AUSTRALIA

CLICK HERE TO KNOW MORE

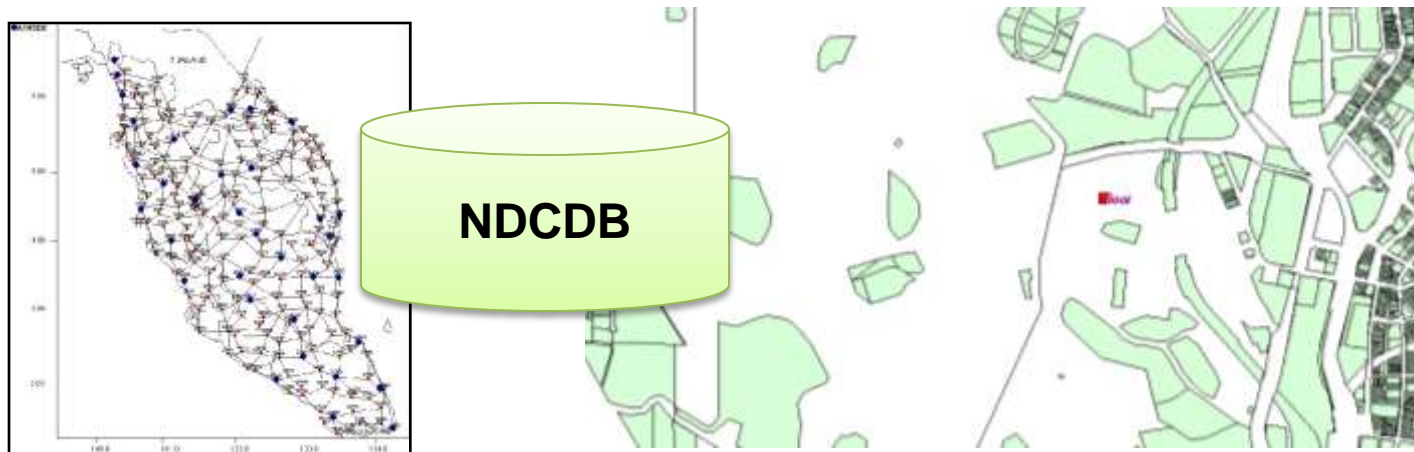# National Digital Cadastral Database (NDCDB) In Selangor – The Way Forward

Sr Ahamad bin Zakaria, KMN, FRISM
JUPEM Selangor

Preface

What is NDCDB?

A cadastral database stored in a computer system for the whole of Malaysia (except Sabah & Sarawak)

Preface

How does it look like?

(Computer screen with lots fabric)

Objective

- Homogenous NDCDB for more integrity and flexibility;
- Adapting the use of GNSS technology;
- Equip staff with least squares adjustment skills;
- Provide control in areas that have high accuracy NDCDB;
- Comprehensive NDCDB by 2020; and
- "GIS-ready" NDCDB.

How NDCB is created?

- NDCDB in Selangor is created from various sources.

- If data is outside the accepted tolerance, they were rejected by the computer system.

- The database is seamless and form part of NDCDB for the whole of Malaysia.

| LAYERS	AGENCIES
A - Parcel B - Zon	Jurukur, Pejabat Tanah & Jabatan Ukur dan Pemetaan
B - Zon	Majlis Daerah, Jab Perancang Bandar
C - Saliran	Jabatan Parit dan Saliran
D - Kawasan Paya	Jabatan Parit dan Saliran , Perhutanan
E - Utiliti	Majlis Daerah, Syarikat Utiliti
F - Tanah	Pejabat Tanah dan Galian
G - Rujukan Geodetik	Jabatan Ukur dan Pemetaan
H - Tindihan Keseluruhan	Kombinasi lapisan-lapisan

Process Flow
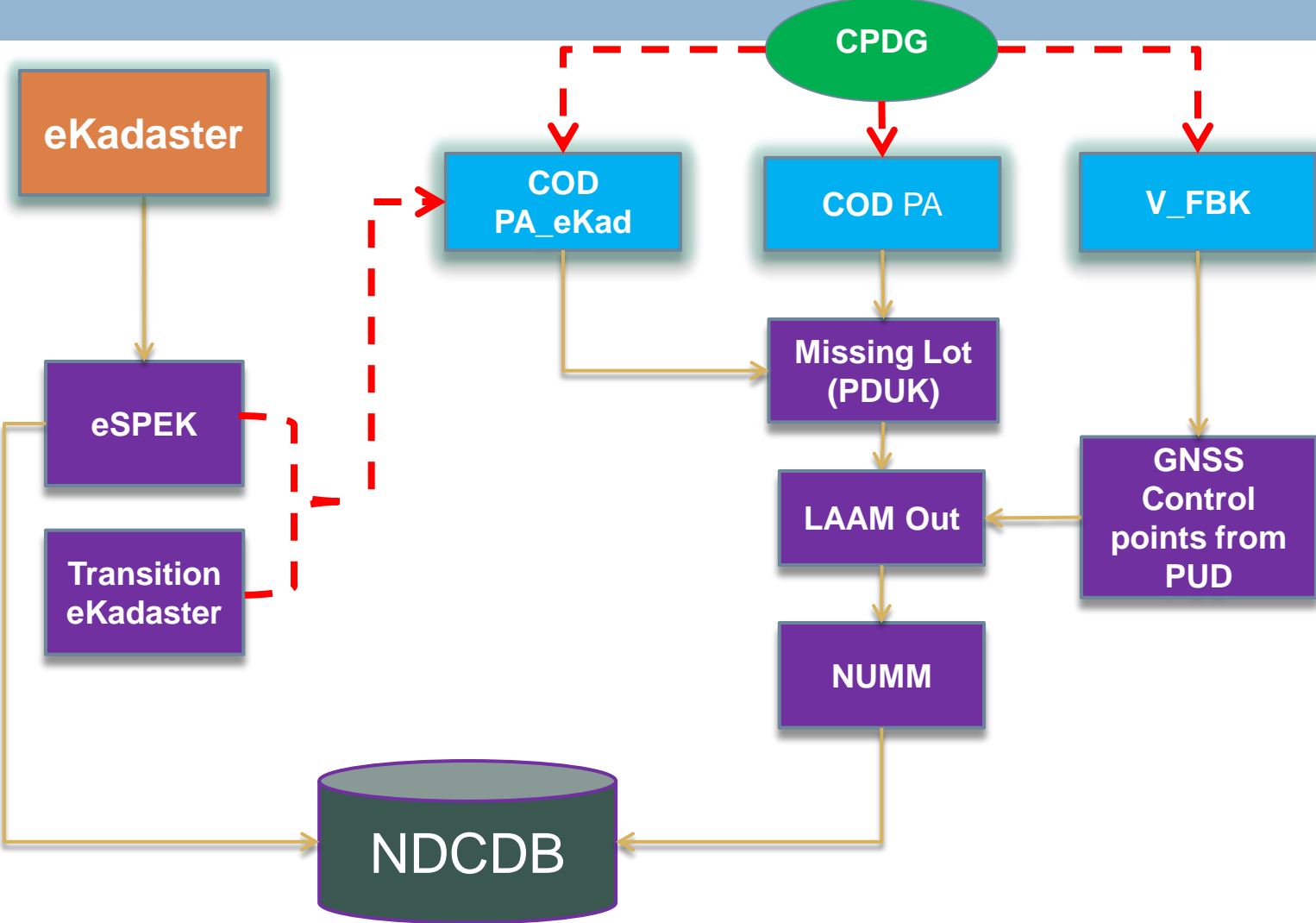
Process Flow

- Lots that have gone through QC process;
- Coordinates that have gone through QC process;
- Add GNSS points;
- Transition lots;
- Lots from PDUK; and
- GIS-ready NDCDB (Topologized).

Screen Shot of Process Flow

Processing LSA using Starnet
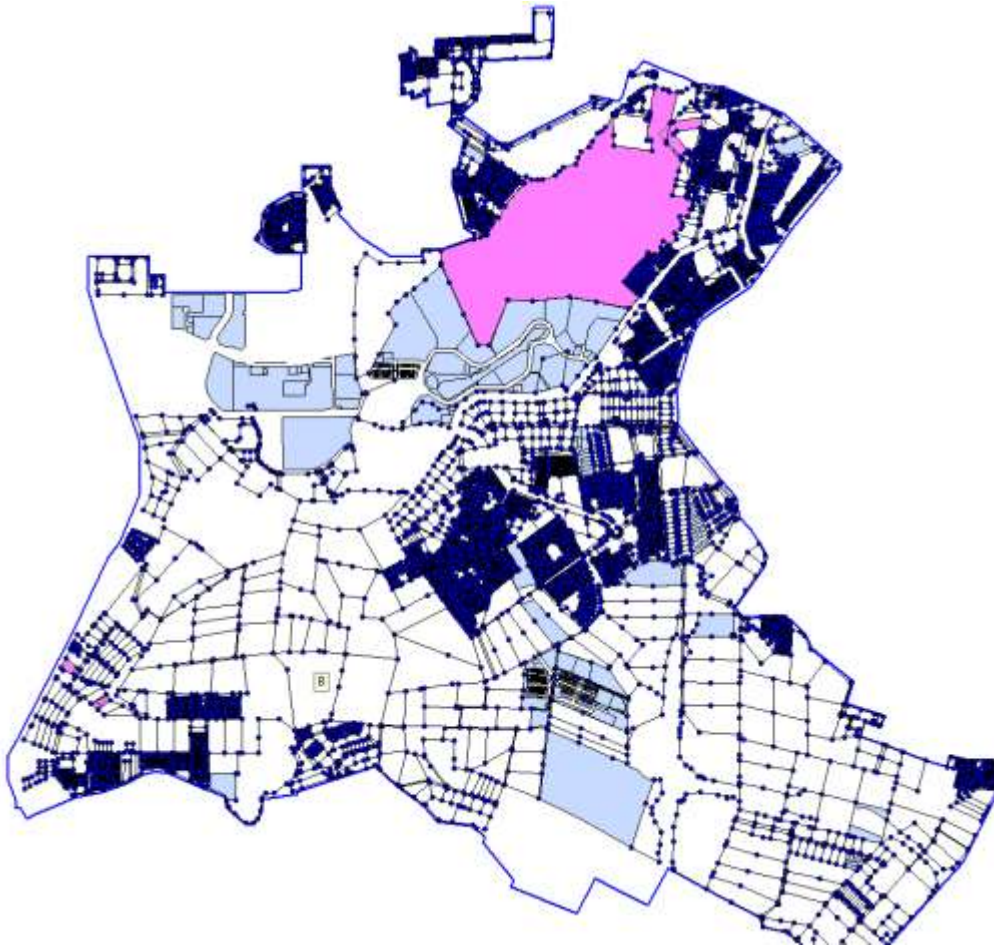
STAR*NET-PRO - B290 - [Processing Summary]

File Options Input Run Output Tools View Edit Window Help

```
Network Adjustment with Error Propagation

Loading Network Data ...
Checking Network Data ...

Performing Network Adjustment ...
   Iteration # 1
   Iteration # 2
   Iteration # 3
   Iteration # 4
   Iteration # 5
Solution Has Converged in 5 Iterations

Statistical Summary
Observation      Count    Error Factor
   Distances     65462        0.971
   Az/Bearings   65394        1.008
   Total        130856        0.989

Warning: Chi-Square Exceeded Lower Bound
   Lower/Upper Bounds (0.995/1.005)

Performing Error Propagation ...
Writing Output Files ...

Network Processing Completed
Elapsed Time = 00:08:41
```

Ground Proofing Data Analysis

1. PUSEL2462_2013– (B217)

	SURVEYED / ADJUSTED			NDCDB				Different (m)
Station No	MarkDesc	North	East	Stone ID	MarkDesc	North	East	
13	BKL	-61189.836	-16745.475	6744411885		-61189.979	-16745.321	0.210
15	BKB	-61184.058	-16805.545	6804511827		-61184.202	-16805.399	0.205
11	BKL	-61390.095	-16764.705	6763613888		-61390.239	-16764.555	0.208
10	BKL	-61384.316	-16824.78	6823713830		-61384.462	-16824.635	0.206
8	BKL	-61604.975	-16947.024	6945716033		-61605.154	-16946.805	0.283
9	BKL	-61667.554	-16953.282	6952016659		-61667.745	-16953.073	0.283

2. PUSEL2544_2013– (B217)

|	SURVEYED / ADJUSTED			NDCDB				Different (m)
Station No	MarkDesc	North	East	Stone ID	MarkDesc	North	East	
19	BL	-60073.441	-15786.521	57861714		-60073.349	-15787.016	0.503
18	BKL	-60042.636	-15877.188	58768406		-60042.517	-15877.683	0.509
15	BKL	-59944.126	-16168.02	6167699423		-59943.944	-16168.52	0.532
17	BKL	-59934.567	-16196.146	6195799327		-59934.415	-16196.675	0.550

Issues

- In Selangor, since the sources are of varying accuracy, so is the NDCDB data.

- Taken steps so that the database become more accurate with a better tolerance.

CRM Point = 1354
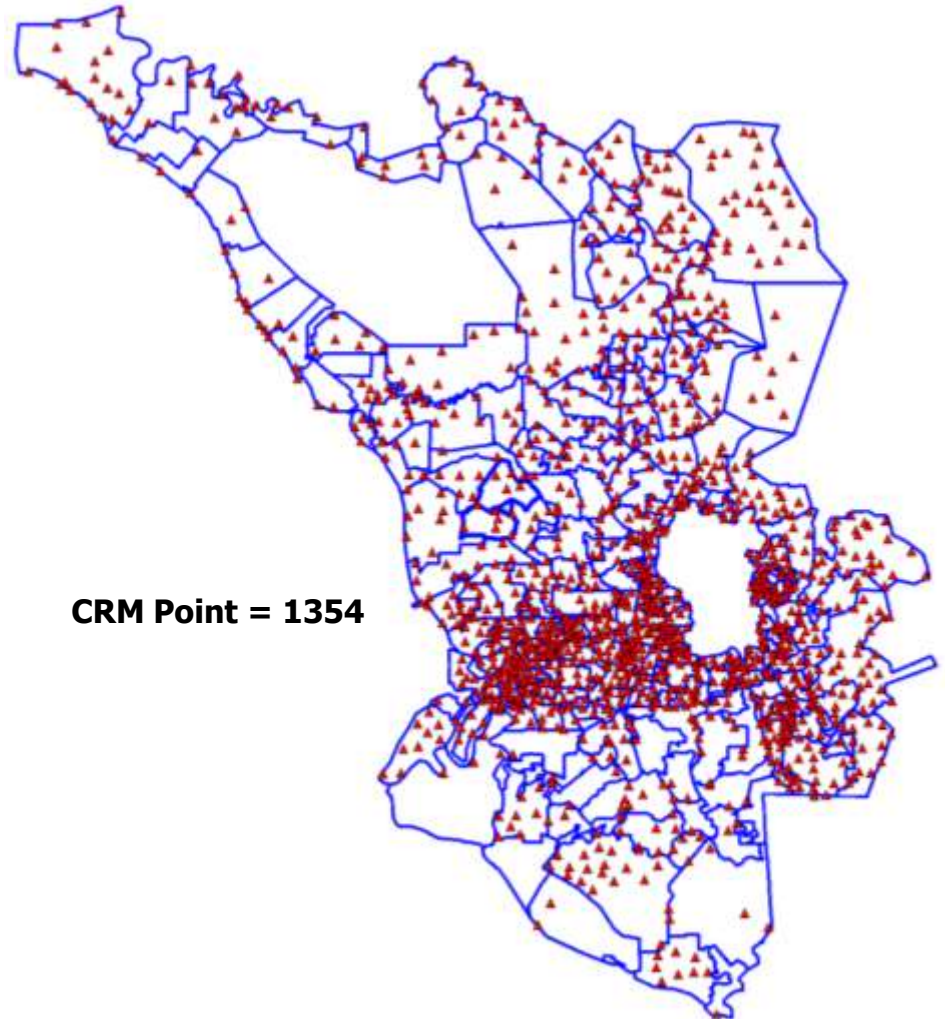
Issues

- Put in more control points, the boundary mark in the database will get better and better.

- For already accurate data, what to do?

Points from CRM File = 5339

Additional Points = 360

Total Points = 5699

(Sept 2015)
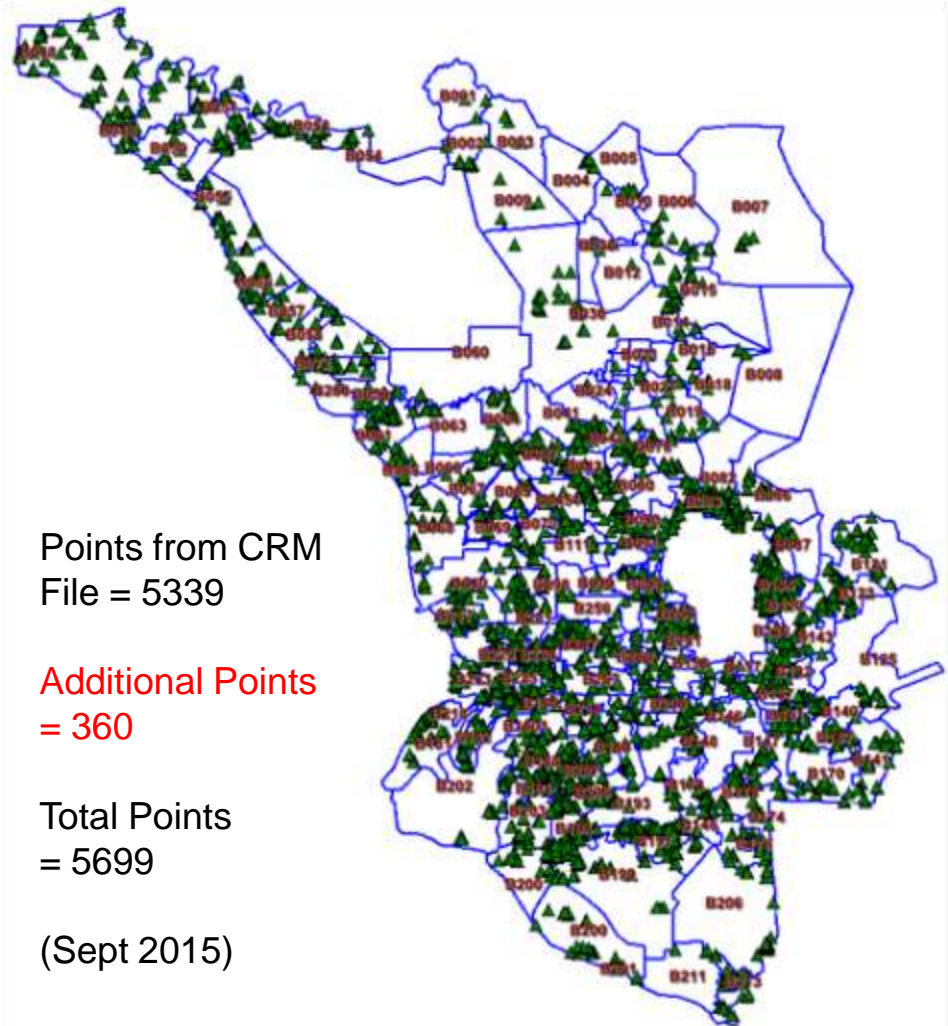
Issues

GP summary report

☐ Revisions checking on Ground Proofing; there are two accuracy values; for BKL 9, 7 and 6 less than 0.05m; and BKL 10, 11 and 12 more than 0.05m

V_CRM_SIAP,...,BLOCK Map
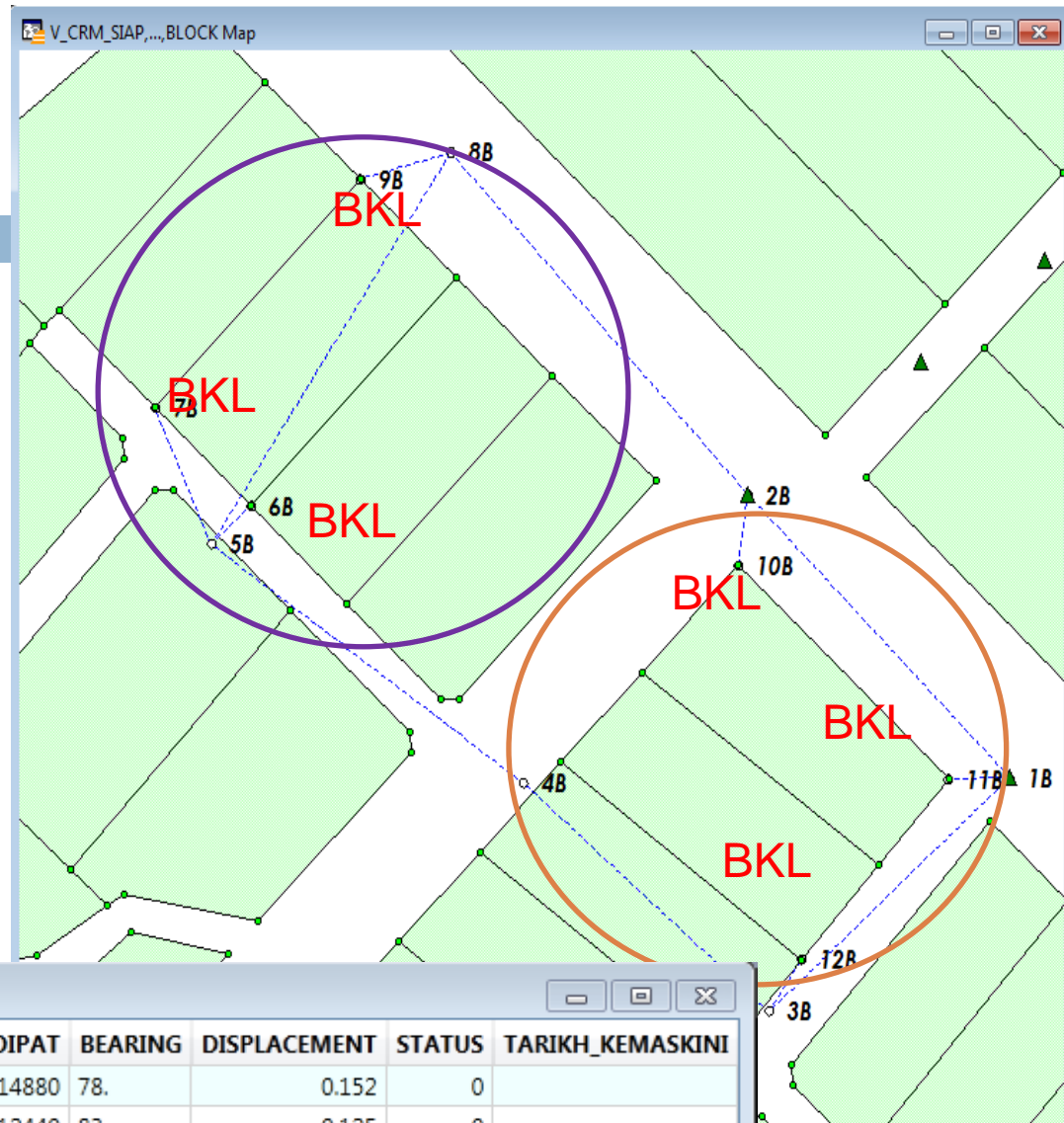
	ID_STN	COOR_EAST	COOR_NORTH	DEL_LATIT	DEL_DIPAT	BEARING	DISPLACEMENT	STATUS	TARIKH_KEMASKINI
2	12B	-16,551.44980	-64,531.34180	0.02980	0.14880	78.	0.152	0	
8	10B	-16,574.20740	-64,403.61110	0.01310	0.12440	83.	0.125	0	
3	11B	-16,498.66140	-64,472.96330	0.03030	0.14240	77.	0.146	0	
9	9B	-16,710.10450	-64,278.44760	0.02860	0.00850	16.07	0.030	0	
1	7B	-16,783.96000	-64,352.45230	0.02130	0.00600	15.07	0.022	0	
8	6B	-16,749.46740	-64,384.20160	0.02360	0.01040	23.07	0.026	0	

The Way Forward

- To put more control points;
- To create more CRM during fieldwork operations;
- To do more ground proofing; and
- To decide when to stop adjusting for accurate points.

Conclusion

- The accuracy of the NDCDB in Selangor is satisfactory and JUPEM Selangor will always plan to make it more accurate by taking steps as above.

- To have a comprehensive and GIS-ready NDCDB in Selangor by 2020.

Thank You