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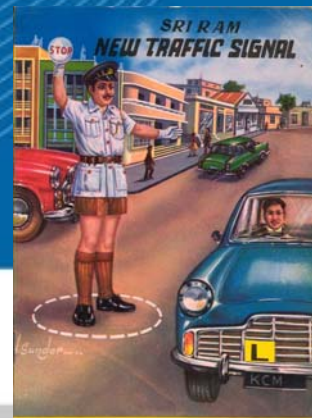
Traffic Signal Design Standards

For the Traffic Management Unit

The Problem

There are currently 633 traffic signals in Auckland with approximately 30 being added annually.

The Traffic Management Unit (TMU) is charged with maintaining, upgrading and optimising all of these signals.





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Who is this TMU?



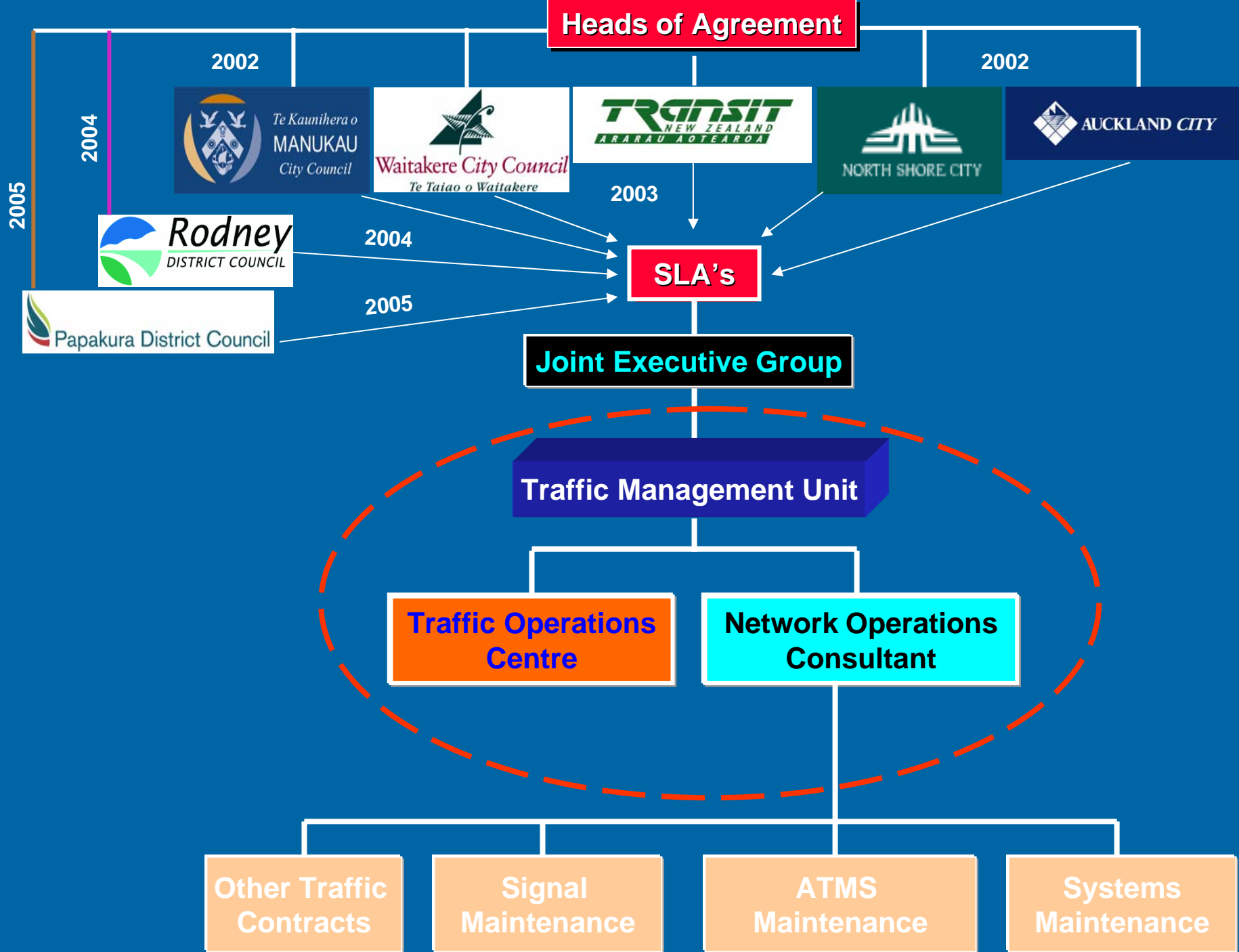


TRAFFIC MANAGEMENT UNIT
AUCKLAND

Auckland Traffic Management Unit

Set up to provide ‘intergrated traffic manangement’ and amongst other things:

Consistency of design and function of traffic signals over the region.



Traffic signal designs received by the TMU.

- The designs were inconsistent. Numbering, layout, displays etc.
- Didn't have phasing, expected traffic volumes, how the signals were to interact with adjacent signals.
- Were filter turns to be allowed?
- What hardware was required to install before turn on?
- Lamp size and type? etc



What we did.....

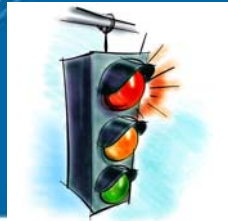
- Meeting of the main players in the traffic signal design industry in Auckland:
(in alphabetical order)

Andrew Hunter, Blair Monk, Clyde Mitchelle, Graeme Raynel, Micheal Daley, Mike Smythe, Pete Crown, Peter Evans, Ray Moriaty, Ross Thomson, Stephen Burnett.

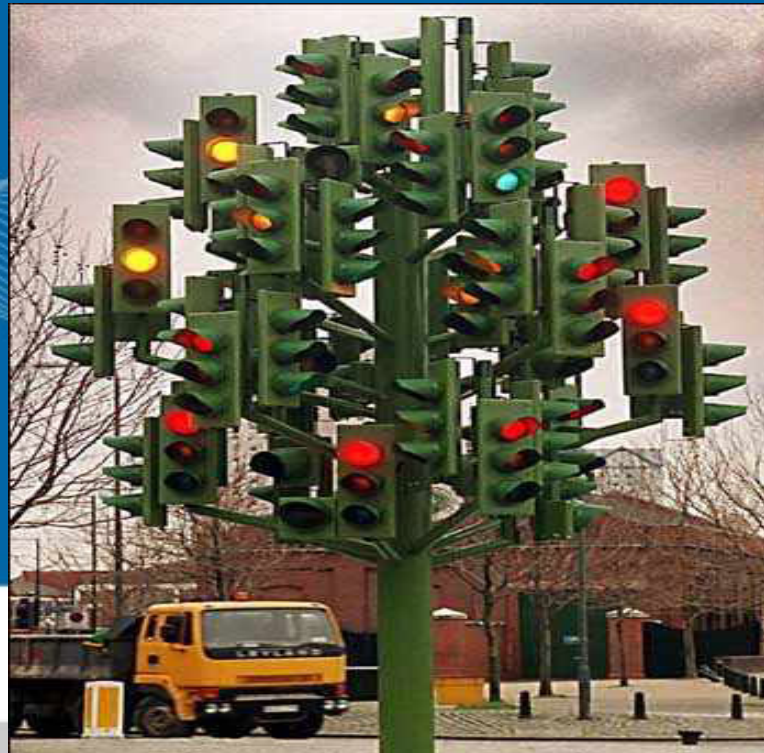


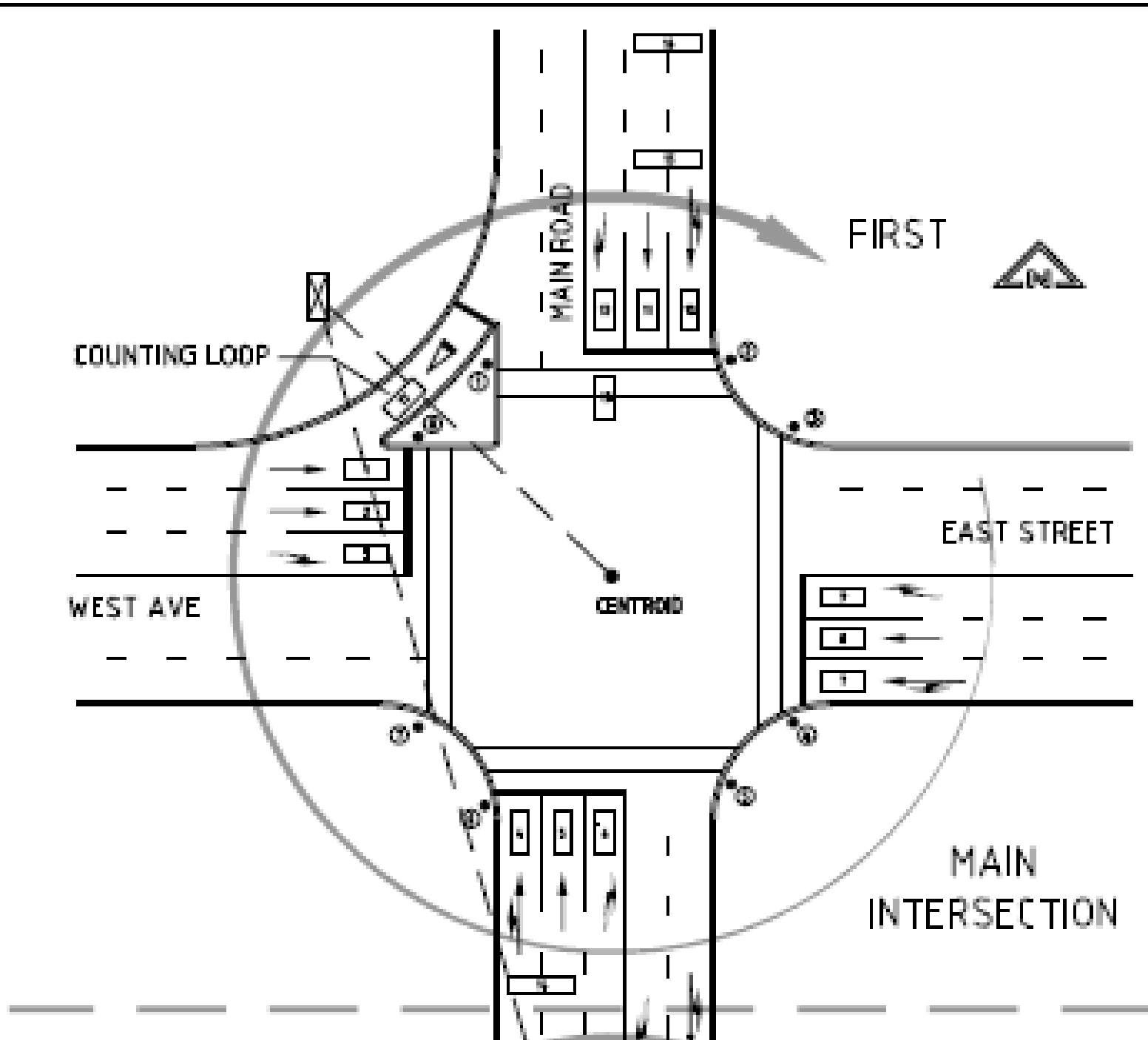
Agreeing standards

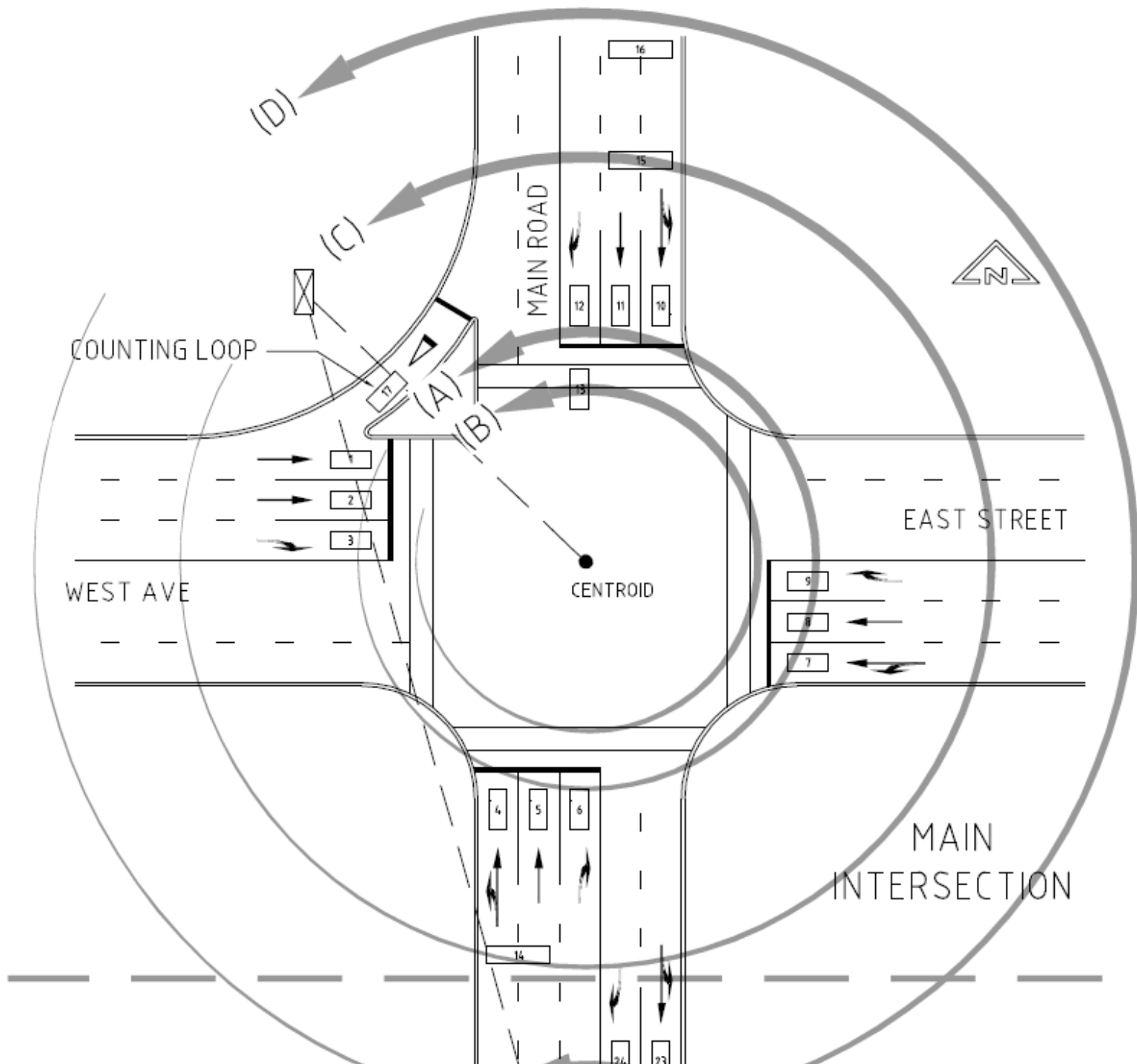
- Each had their own methods and had applied these in their own area.
- Vigorous discussion ensued.
- Once they had worn each other down they agreed standards and processes that they could all live with.
- We didn't make them sign in blood but GHD employed Verdun McClelland to keep this unruly bunch in line.
- This allowed consistent designs that were documented that could be checked and edited by others should the original designer go to the crocodile and V8 theme park in the sky.



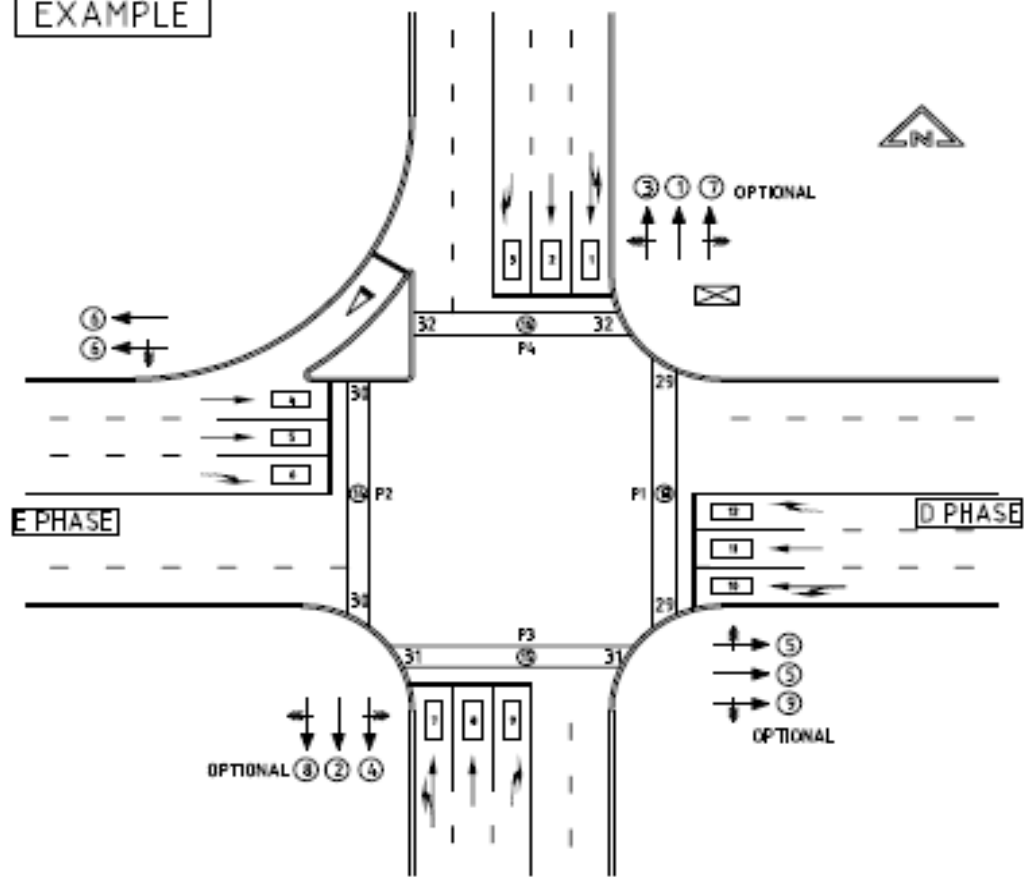
Stuff that was agreed on.....





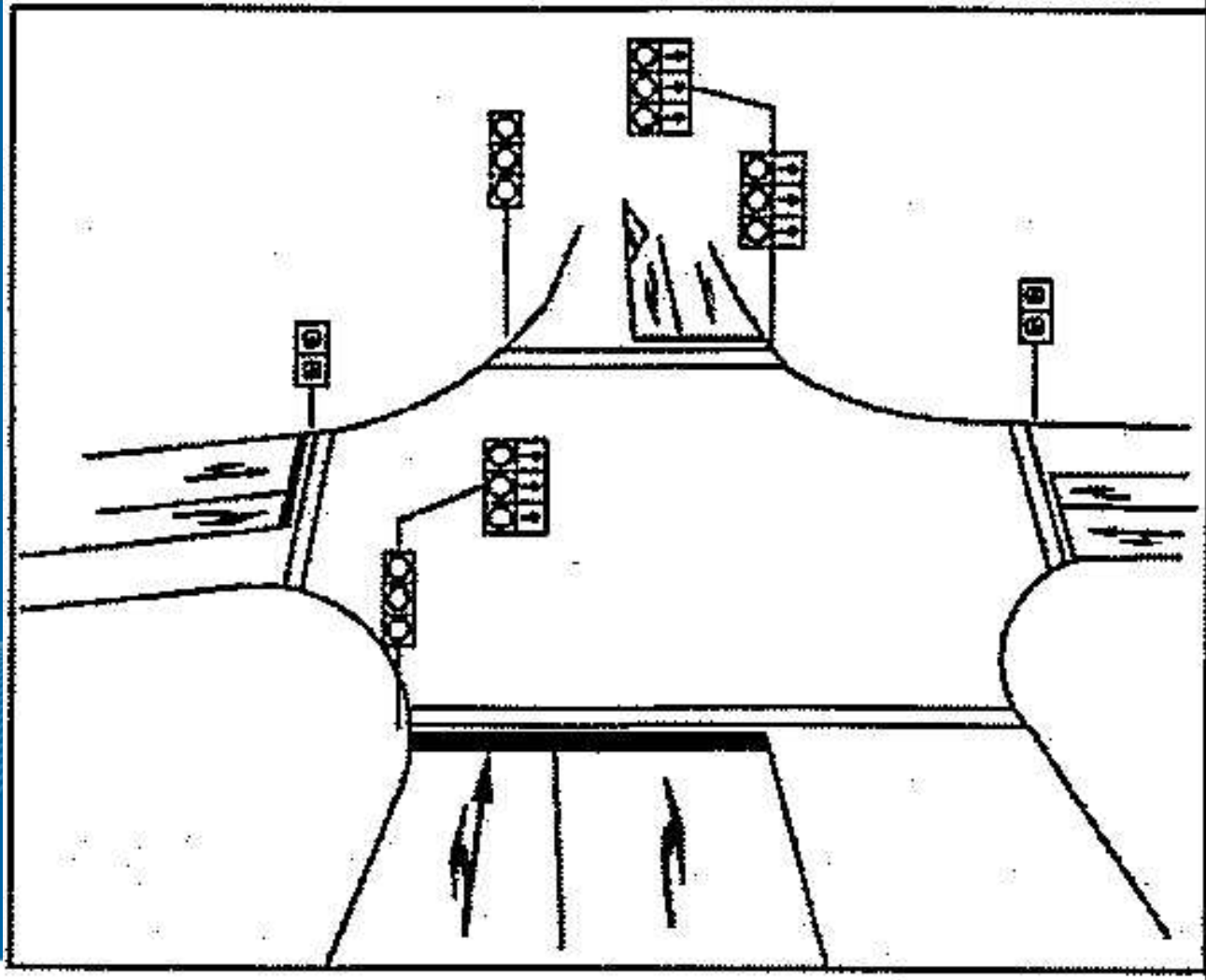


EXAMPLE

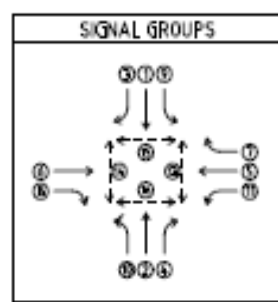


PHASE	A	D	E	F
SIGNAL GROUPS				
B	Z+			F1
C	Z-			F2

PHASE SEQUENCE A | D | E | F
 PEDESTRIAN PROTECTION PROVIDED FOR THE PERIOD OF WALKTIME

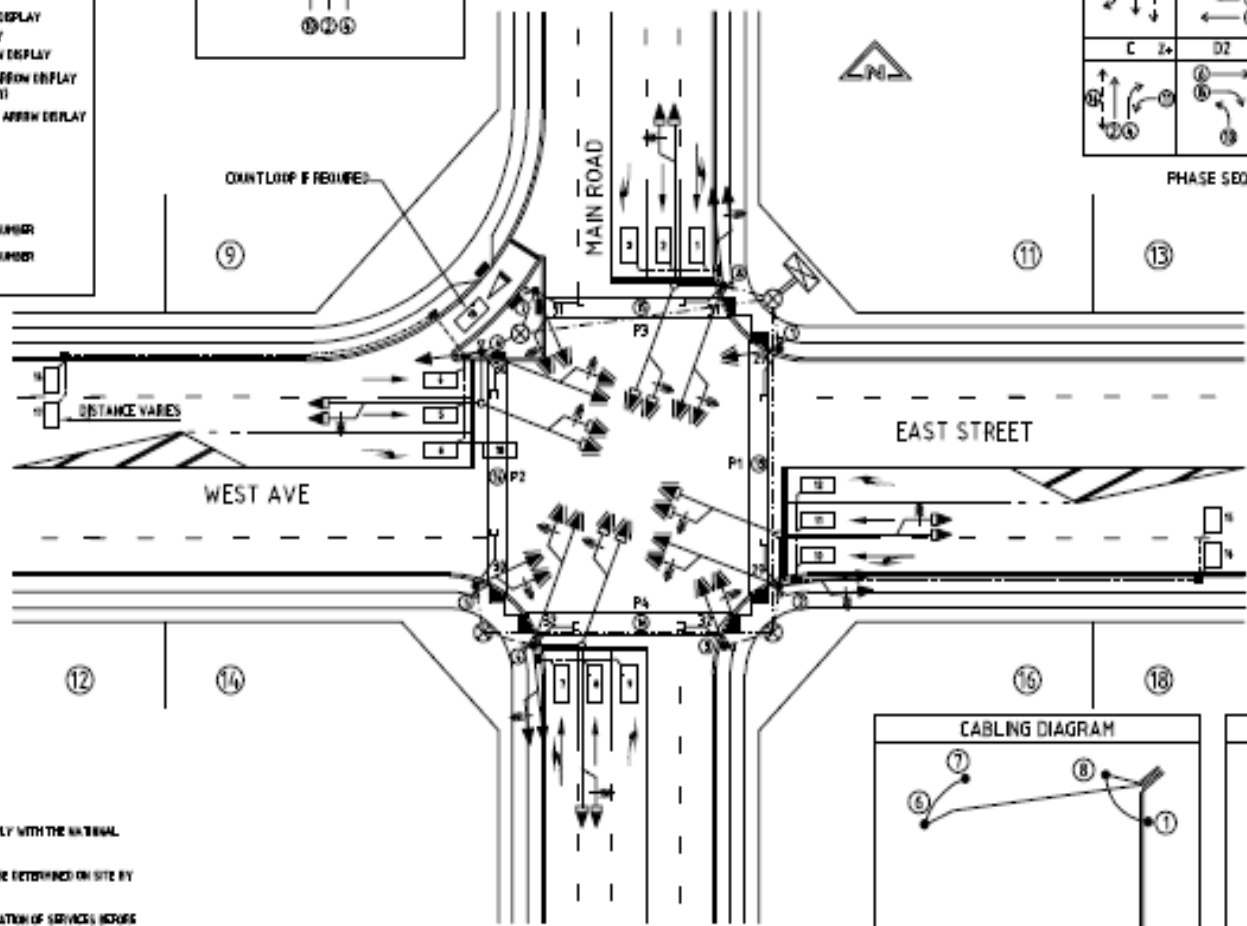


SIGNALS KEY	
⊙	CONTROLLER
⊙	SIGNAL DUCT ACCESS CHAMBER
⊙	ROAD SIDE JUNCTION BOX
⊙	POST AND POST NUMBER
⊙	POST WITH OVERHEAD MAST ARM
⊙	TRUCK ASPECTS - OPEN VEUE
⊙	TRUCK ASPECTS - OPEN VEUE
⊙	M/S ASPECT
⊙	CYCLE ASPECT
⊙	ASPECTS WITH CLOSED VUEE
→	3 ASPECT INFLAY
→	3 ASPECT DISPLAY WITH SINGLE GREEN ARROW DISPLAY
→	3 ASPECT DISPLAY WITH THREE ARROW DISPLAY
→	3 ASPECT DISPLAY WITH SUPPLEMENTARY ARROW DISPLAY
→	3 ASPECT DISPLAY WITH SUPPLEMENTARY TWO ARROW DISPLAY (E, Y AND G INDICATE COLOUR OF ARROW DISPLAY)
→	3 ASPECT DISPLAY WITH SUPPLEMENTARY THREE ARROW DISPLAY
→	PEDESTRIAN ASPECTS
→	PEDESTRIAN CALL BOX AND INPUT NUMBER
→	PEDESTRIAN CALL PAD AND INPUT NUMBER
→	JOINT DUCTING
→	JOINT DUCTING
→	INDUCTANCE LOOP - STOPLINE LOOP AND LOOP NUMBER
→	INDUCTANCE LOOP - ADVANCE LOOP AND LOOP NUMBER
→	TACTILE PAVES



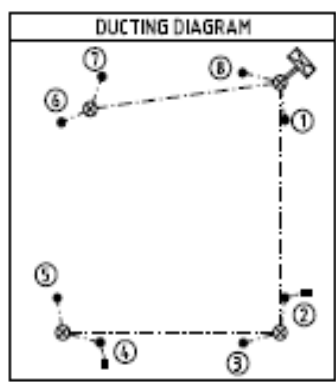
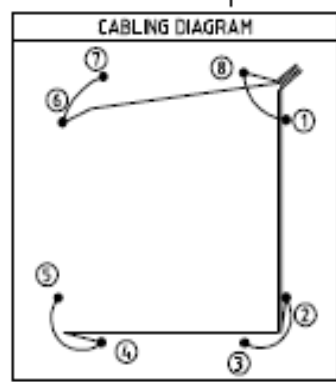
TYPICAL PHASING AND SIGNAL GROUPS				
PHASE	A	D	E	G
SIGNAL GROUPS				
	B 2-	D1	F XSP	G1
	C 2+	D2	F1 XSP	G2

PHASE SEQUENCE A : D : E : G



- NOTES**
- TRAFFIC SIGNAL EQUIPMENT AND INSTALLATION SHALL COMPLY WITH THE NATIONAL SPECIFICATION.
 - PILE POSITIONS ARE INDICATIVE ONLY. FINAL POSITIONS TO BE DETERMINED ON SITE BY THE ENGINEER AND CONTRACTOR.
 - CONTRACTOR TO liaise WITH SERVICE AUTHORITIES FOR LOCATION OF SERVICES BEFORE ANY EXCAVATION.
 - CONTRACTOR TO ALLOW FOR THE INSTALLATION OF C-FROM DAT AND TESTING.
 - DUCTS BETWEEN CHAMBERS SHALL BE 100mm DIA.
 - IF TRUNCHED PVC 100mm DIA DUCT IS TO BE INSTALLED, IT MUST BE THE 100mm DIA DUCTS ARE TO BE INSTALLED.

PLAN
SCALE 1:250 @ A1
OR 1:200 @ A1 (PREFERRED)





Currently

- Reviewing approximately 100 designs per year.
- Created design standard document.
- Which is continually updated with the help of the existing design team members and new hired help Kent McNaughten and Bill Sissons.

Where to from here

- Have circulated it to designers in Auckland to improve design standards.
- SNUG.....National Guideline or what?



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End
Thank you

