Road design proposal for 27th Main, HSR Layout

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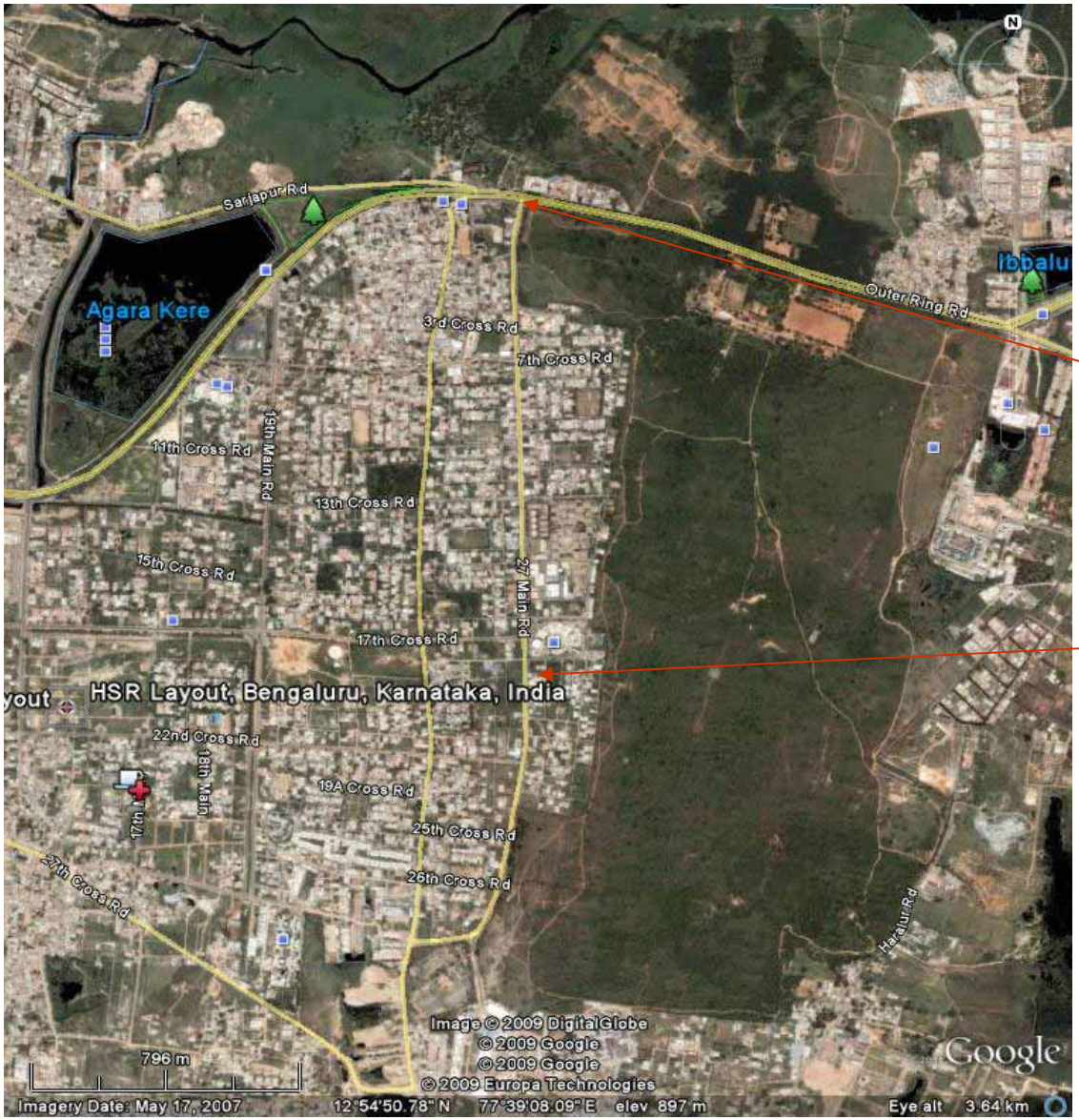
Map of road under consideration



27th Main,
Sector-1
HSR Layout
80ft wide road
1.4km strech

Traffic characteristics

Moderate traffic. No pile up at peak hours, but crossing is a little difficult

Residential layout, a large number of cross-roads, at every 100 ~ 200m

Heavily commercialized. Especially the middle third. Shopping destination for the neighbourhood (a la scaled down Brigade road). Hence lot of parking, shop and go traffic.

Pedestrian heavy, due to residential layout. Lot of people crossing the road, as shops on either side.

Some handcarts (push carts), ie road side hawkers as well.

A lot of through traffic as well. Neighbourhood as well as residential complexes further down use this as access to get out of layout and onto Sarjapur/ORR road.

Couple of auto stands at cross roads, NIFT college, two big apartment complexes, multiple 3 storeyed shopping malls on the road

Road characteristics

Currently no footpath, a storm water drain 1m wide on either side, mostly unused

Commercial complexes come till the edge

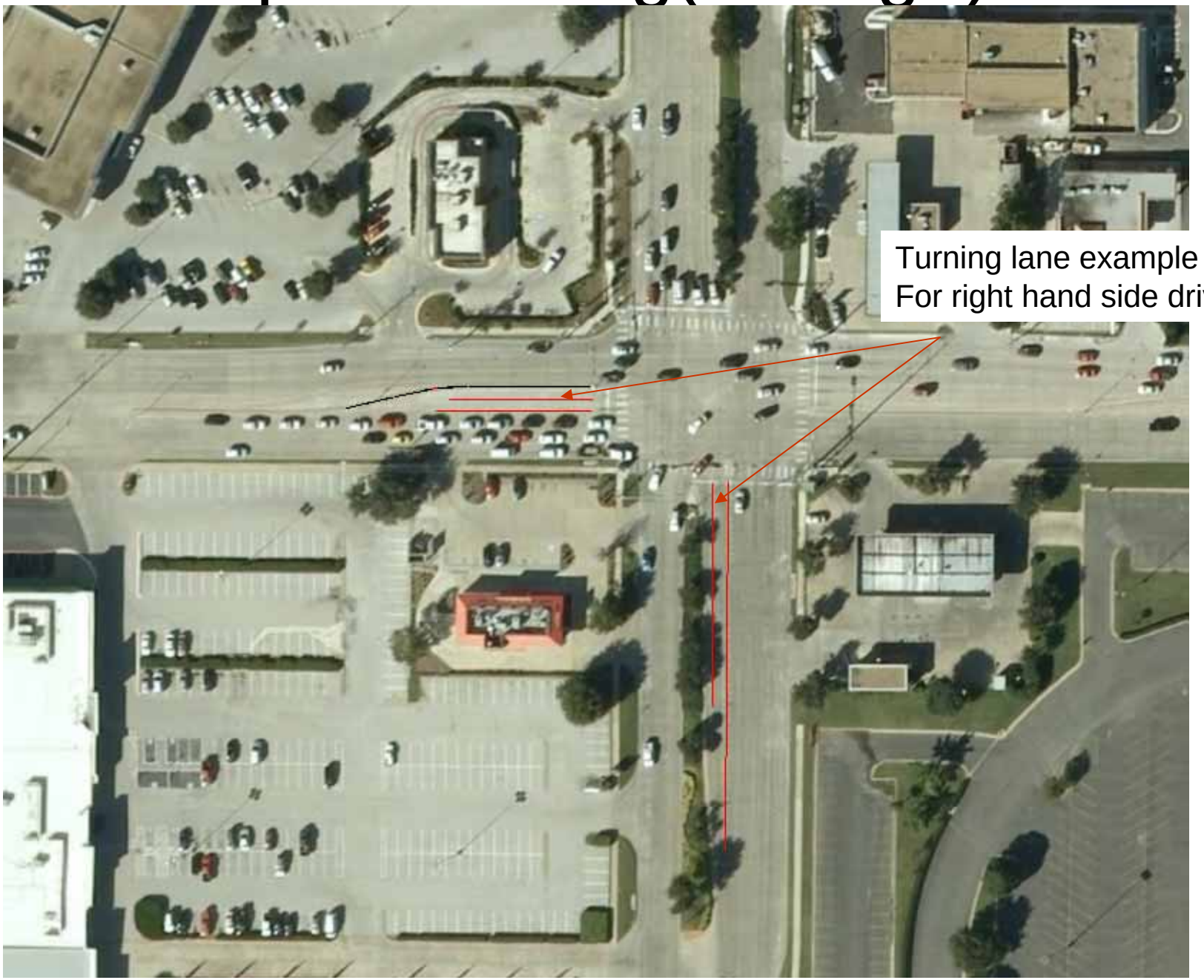
Electric poles on either side. Approx 2m from storm water drain on one side, 1m on the other side

Lamp poles on one side, approximately in a line, 2.5m to 3m from storm water drain edge

Trees arbitrarily planted, sometimes 2.5m from edge, sometimes 0.5m

Cannot change already existing structures/trees.

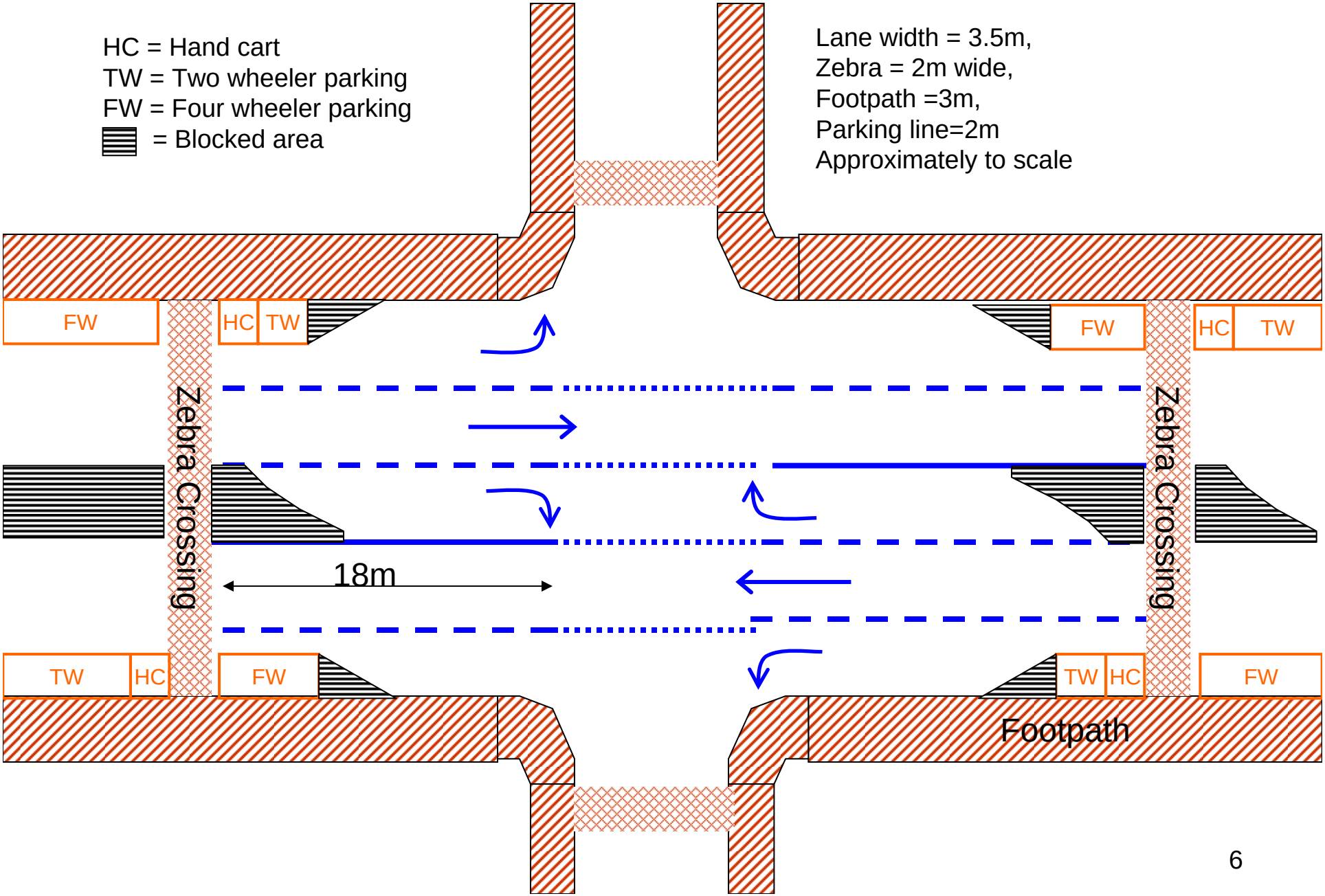
Concept of turning(storage) Lane



Intersection design

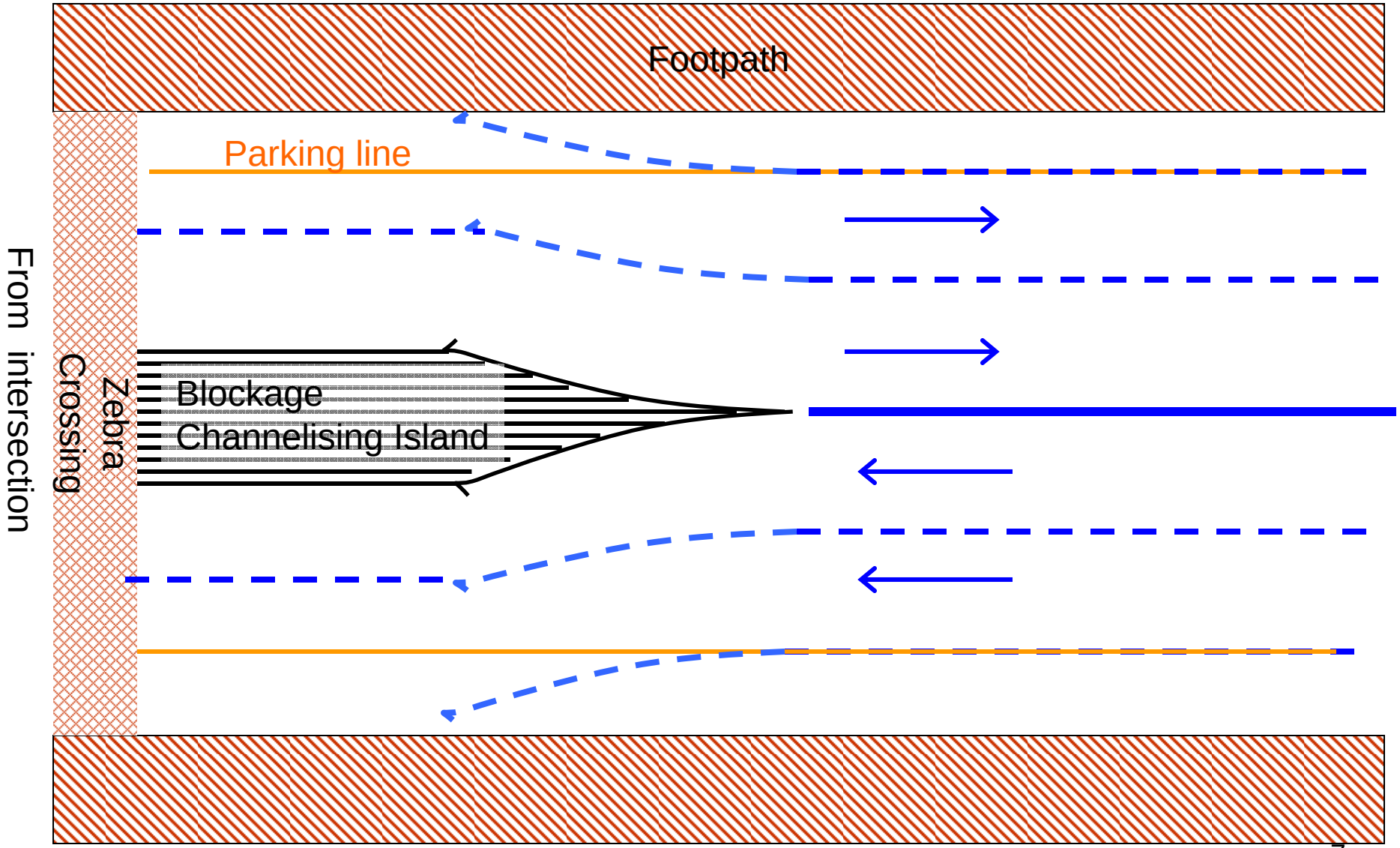
HC = Hand cart
TW = Two wheeler parking
FW = Four wheeler parking
= Blocked area

Lane width = 3.5m,
Zebra = 2m wide,
Footpath =3m,
Parking line=2m
Approximately to scale



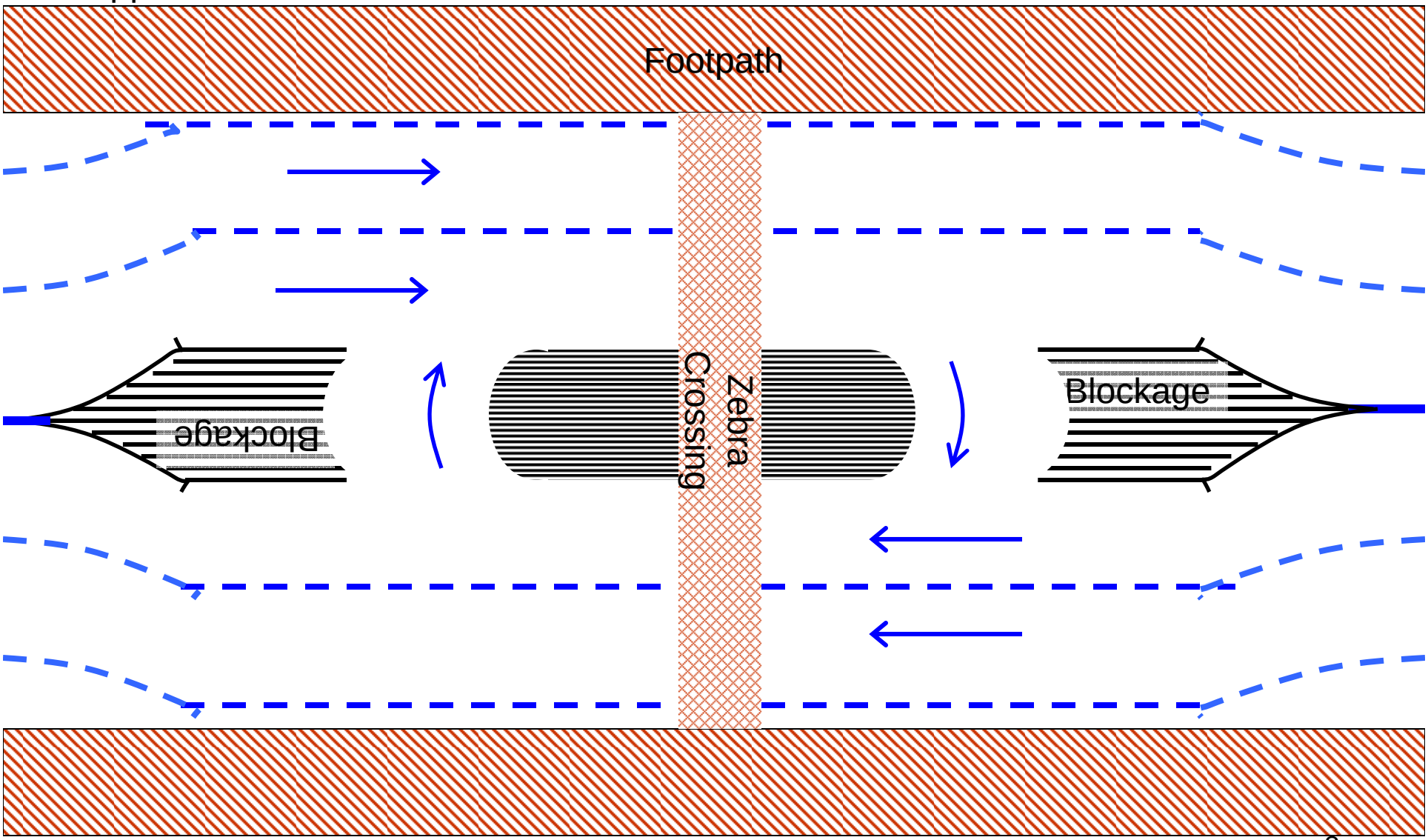
Intersection to carriageway

Lane width = 3.5m, Zebra = 2m wide, Footpath =3m, Parking line=2m
Approximately to scale



U-turn

Lane width = 3.5m, Zebra = 2m wide, Footpath =3m. No parking allowed
Approx to scale

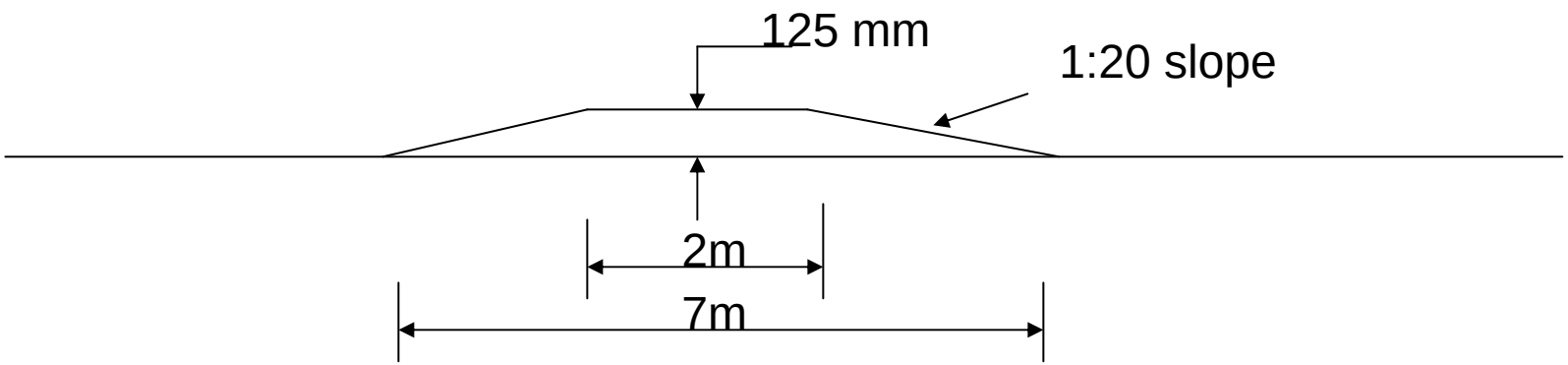


Pedestrian path design

Zebra crossing = Pedestrian crossing = Cross walk
Footpath = Sidewalk

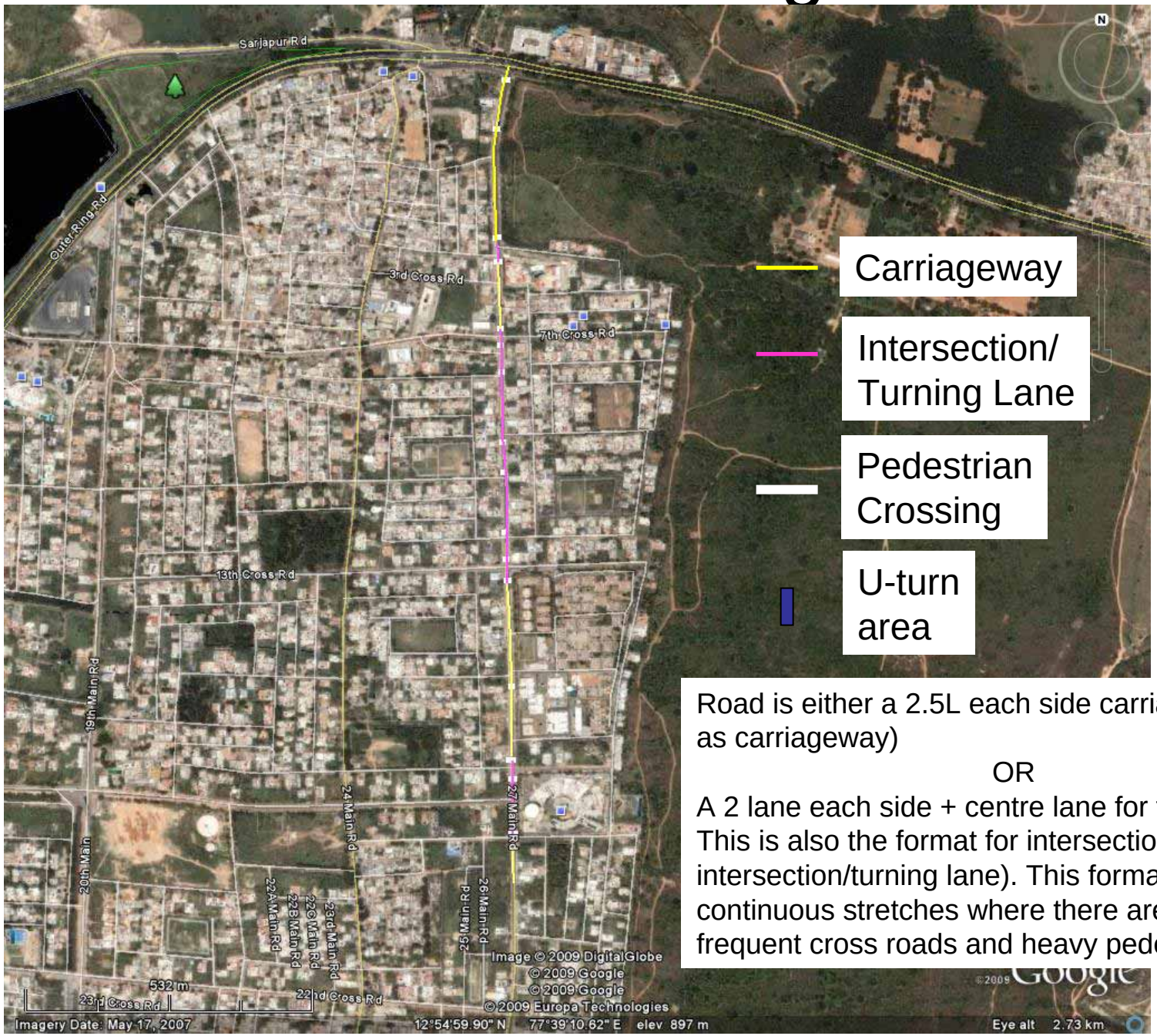
Footpath should be 125mm above road level (not 200mm, as with this height, Car doors cannot open and tendency is to park away from kerb)

Zebra crossing should be flush with the footpath. This results in a mild hump for vehicle users as shown below



Note: IRC: 99-1988 recommends 100mm height, additional height is to be flush with footpath

Road design-All

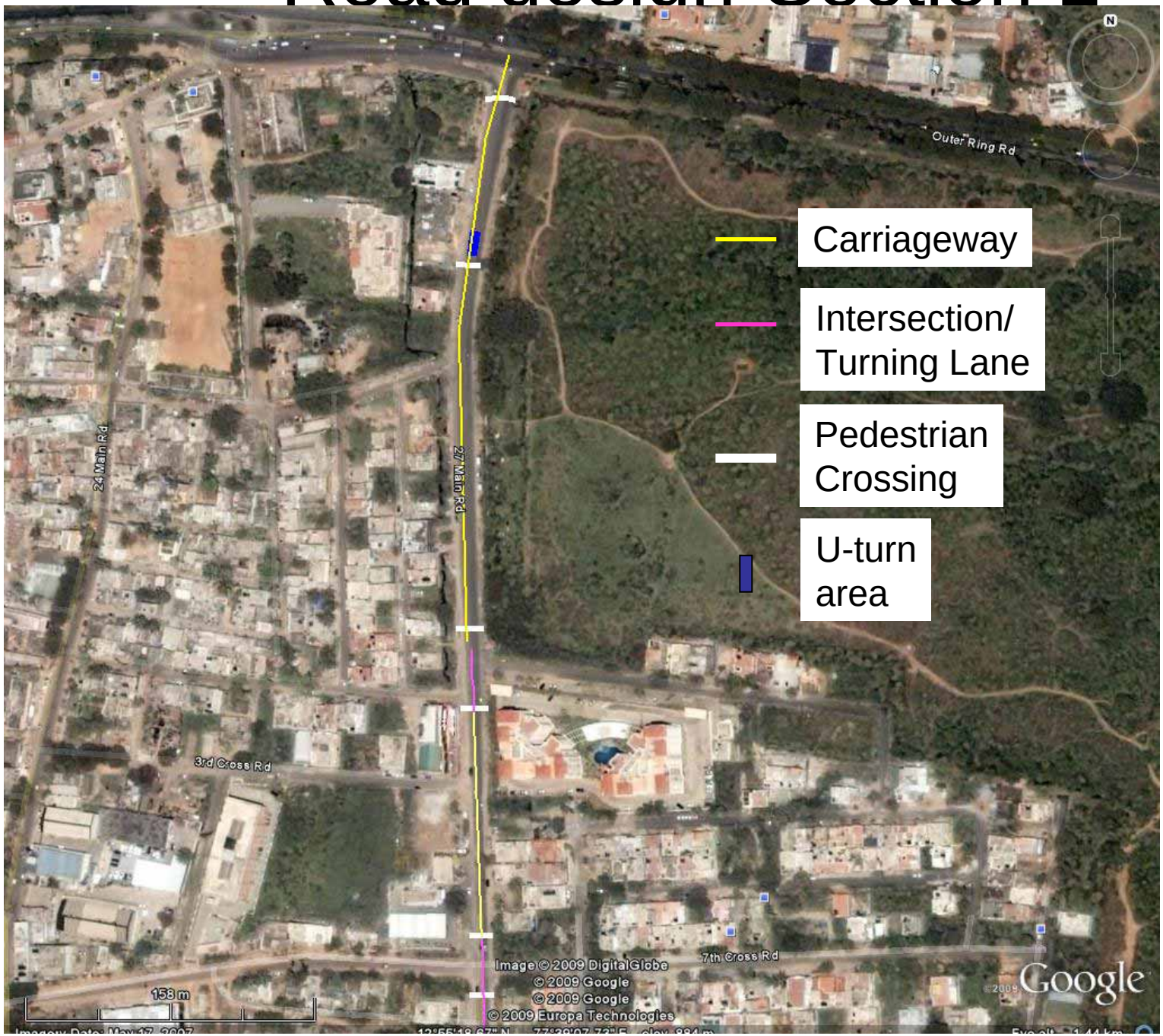


Road is either a 2.5L each side carriageway (referred to as carriageway)

OR

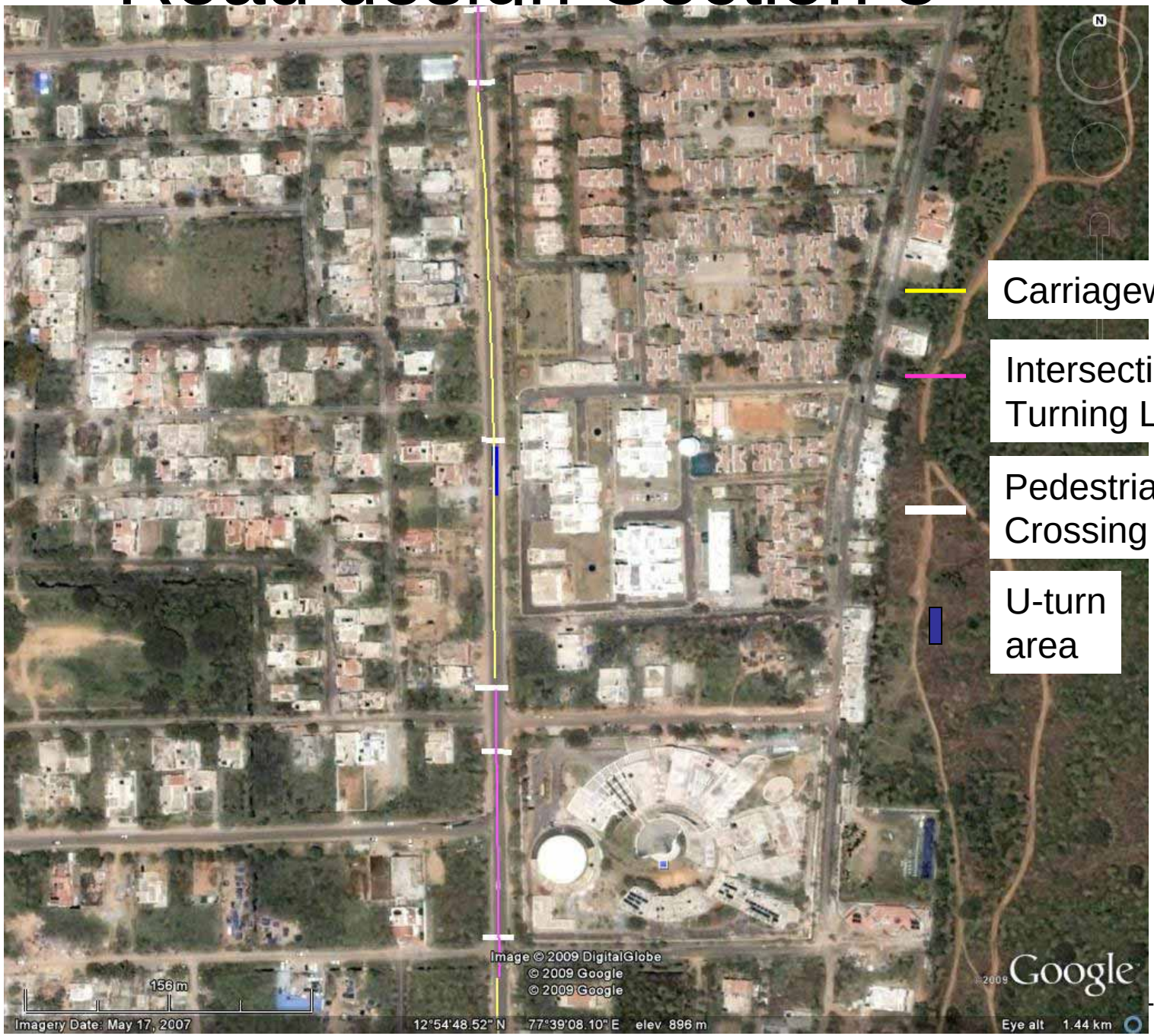
A 2 lane each side + centre lane for turning
This is also the format for intersections (referred to as intersection/turning lane). This format is used in continuous stretches where there are a number of frequent cross roads and heavy pedestrian cross-traffic.

Road design-Section 1



Road design-Section 2

Road design-Section 3



Proposal highlights

❖ Focused on providing safety and ease for pedestrians

❖ No pedestrian crossing at intersection, a little away, but with a large refuge island, equal to lane width

❖ Pedestrian now needs to look only in one direction for crossing. Normally, if he is crossing at the intersection, he needs to be worried about traffic from multiple directions. Flip side is he needs to walk a little extra.

❖ For vehicular traffic, storage lanes provided for turning. At intersection, does not have to worry about pedestrians and can focus on traffic. This is a major concern I have observed at intersections, with a chaotic combination of pedestrians and vehicles going in all arbitrary directions.

❖ Number of traffic calming elements provided at intersection

- ❖ lane narrowing. Second lane is narrowed to provide for turning lane
- ❖ pedestrian crossing with inbuilt hump
- ❖ lane shifting. As lanes move by ½ a lane, needs to be aware

❖As a result of the above, no signal is needed. As stated in IRC, if the traffic is low, signal adds risk. No additional speedbreaker is required either.

Proposal highlights .. contd

❖ 3m provided for footpath. However, since there are a number of already existing structures, not all of this will be available. Minimum 1.2m should be provided under all conditions. This will allow wheelchair/tram usage, especially as crossings are flush with footpath

❖ Entrance to footpath from complexes should be flush with footpath. Dipped kerb at end provided from footpath if vehicle needs to go from building to road.

❖ Footpath will have a cross-fall of 2%. At kerb edge, inlets to storm water drain provided at appropriate places.

❖ As crossings are flush with footpath, will provide minimum inconvenience to wheelchair users.

❖ Additional space in the refuge island (carriageway side) can be used to provide open air seating, and make it more aesthetic.