At-Grade Mid-Block Crossing for Pedestrian Safety and Comfort at Central Mall on Ganeshkhind Road, Pune

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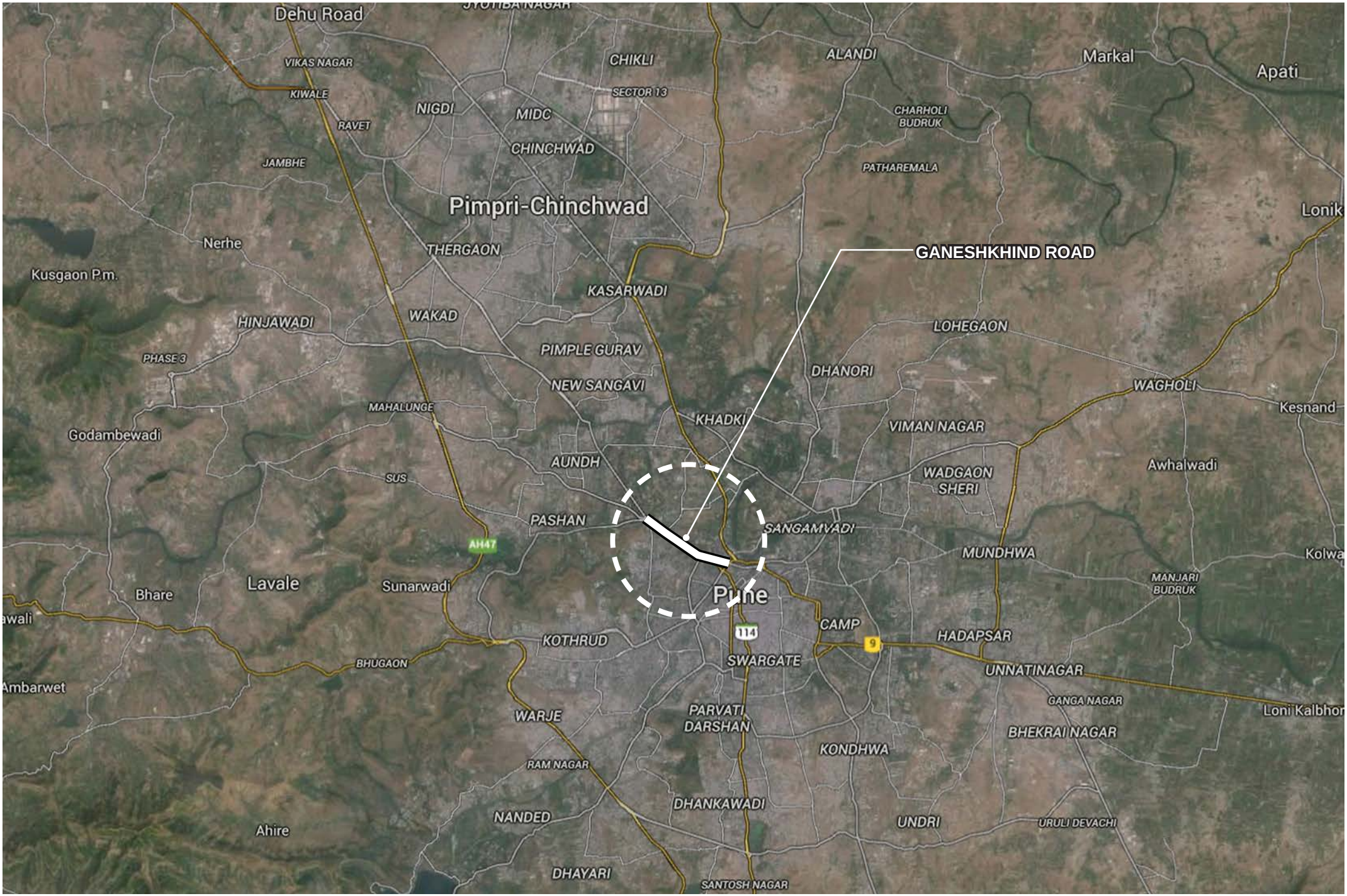
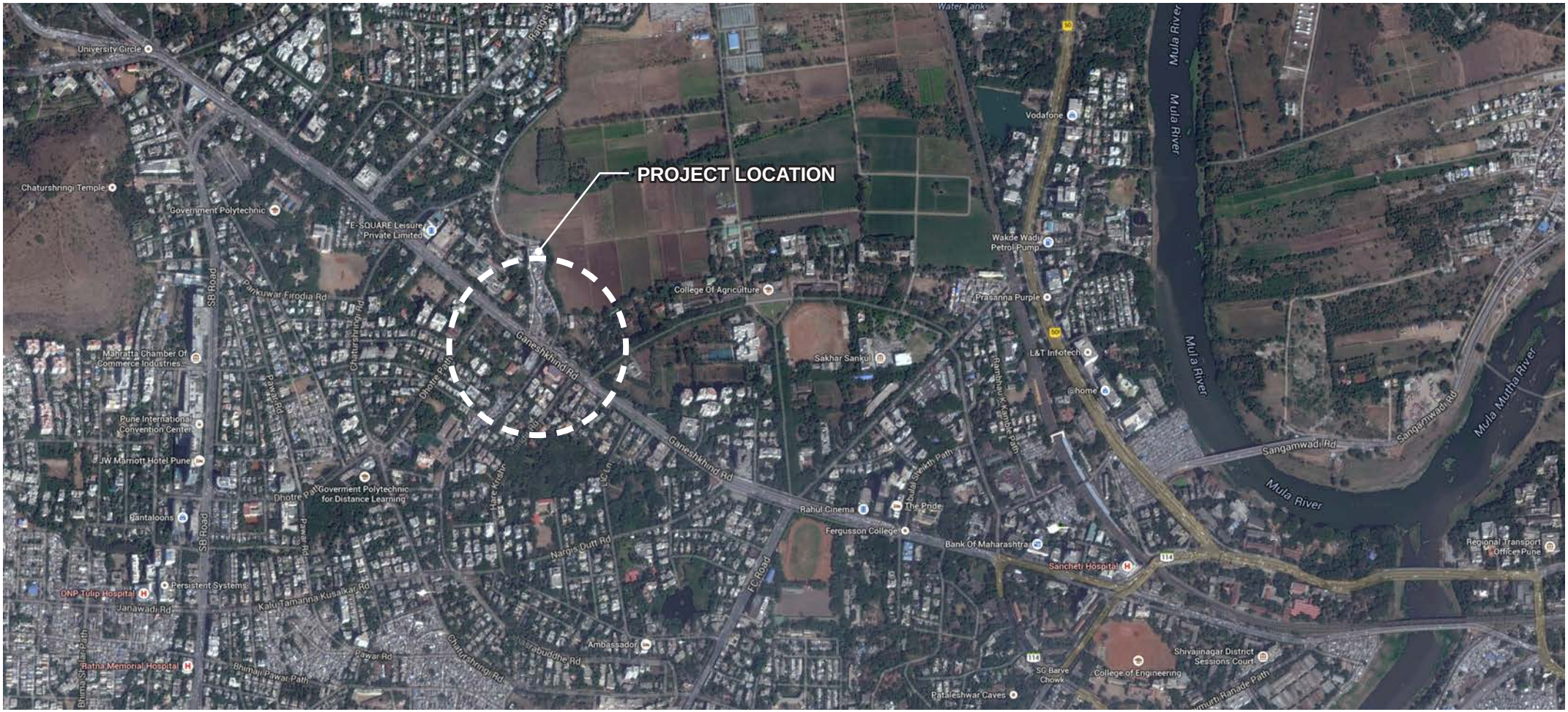
Outline

Ganeshkhind Road in the Context of Metropolitan Pune

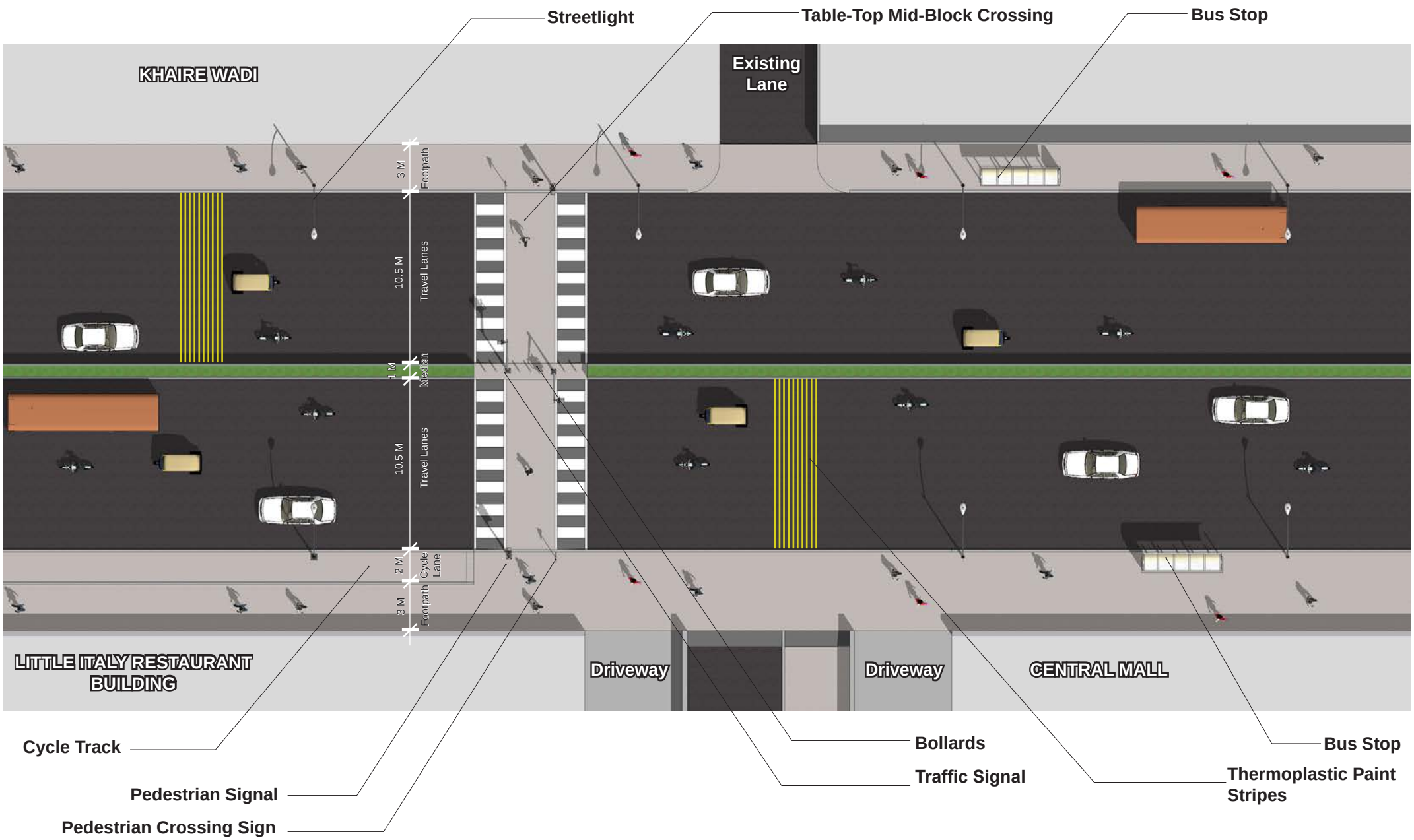


Ganeshkhind Road and Mid-block Crossing Location

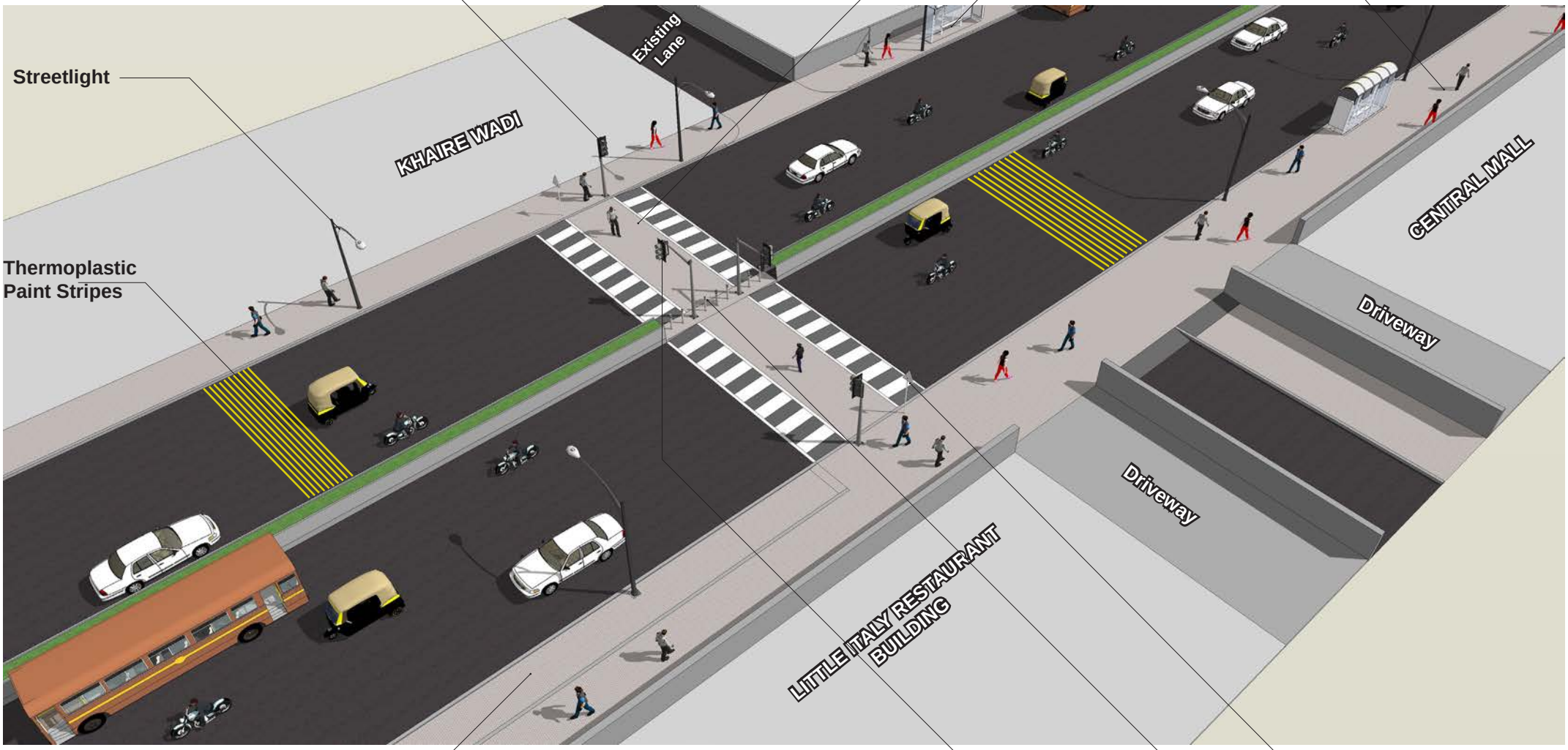


Mid-Block Crossing at Central on Ganeshkhind Rd, Pune

Existing Conditions - Plan (30 M ROW)



Existing Conditions - Aerial View



Existing Conditions - Issues

Very little signal compliance by vehicles and hence by pedestrians as well

No aggressive traffic calming leads to pedestrian not being prioritized

People already use the third lane as on-street parking

No stop bar for signal or lane markings

Long crossing distances for pedestrians

Median island too narrow and not at the same level as the Table-Top Crossing

Far side traffic signal encourages vehicles to come very close to the table top crossing

Pedestrian crossing sign blocked by traffic signal pole

Table-Top Crossing not at continuous level with footpath

No speed breaker, only thermoplastic paint stripes

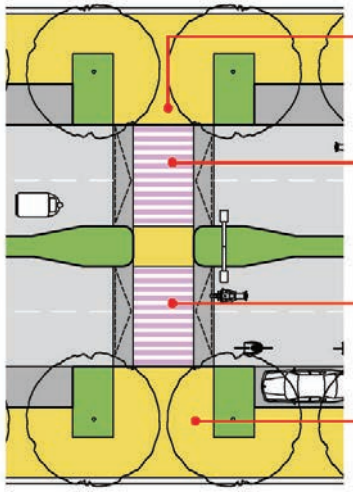
No cycle tracks on northern side of the street

No lane markings, encourages speeding

People already use the third lane as on-street parking

Design Standards For Raised / Table-Top Mid-Block Crossings

Formal mid-block pedestrian crossings should be provided at regular intervals (i.e., at least every 200 m) to ensure that pedestrians have a safe place to cross. To ensure safety, formal crossings should be signalised or should be constructed as tabletop crossings with ramps for vehicles. The purpose of a tabletop crossing is to reduce vehicle speeds and also emphasise the presence of the pedestrian crossing. Warning tiles should be laid wherever there is a pedestrian crossing (IRC: 103-2012, 6.7).



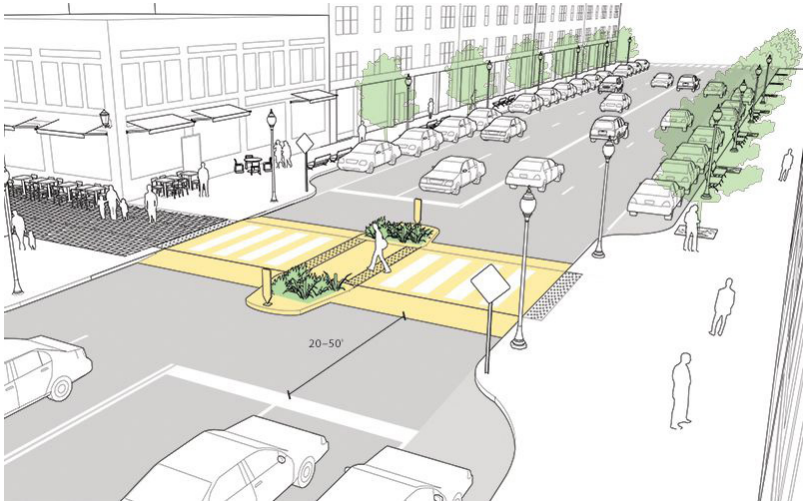
Accessibility. Warning tiles should be placed at the edge of the footpath to warn the visually challenged about the carriageway.

Height. Crosswalks should be elevated to a level of the adjacent footpath (150 mm above the road surface) with ramps for motor vehicles with a slope of 1:5 to 1:8 (IRC:103-2012, 6.7.4.1).

Width. Crossings should be as wide as the adjacent footpath and never narrower than 3 m (IRC:103-2012, 6.7.2)

Crossing distance. Pedestrians must be given the shortest possible direct route to cross the street (IRC:103-2012, 6.7.4.1). The bulbout into the parking lane helps reduce the crossing distance.

Source: Footpath design, ITDP & IRC



Source: Urban Street Design Guide, NACTO

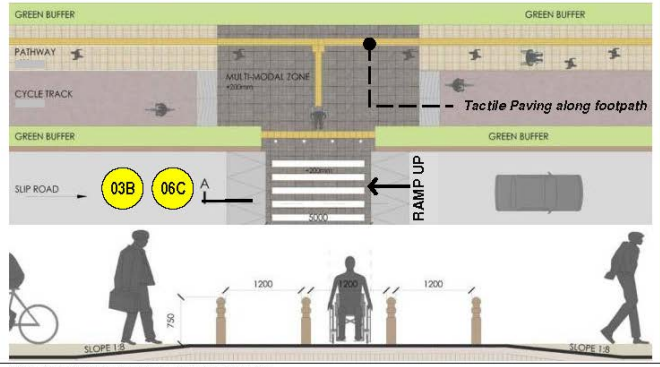
Mid-Block Crossing at Central on Ganeshkhind Rd, Pune

03B Raised "Table-top" Crossing (See also 06B)

At Non-Signalized Crossings: Use Raised "Table-top" Crossings

Key Design Guidelines:

- Raised crossings bring the level of the roadway to that of the sidewalk, forcing vehicles to slow before passing over the crossing and enhancing the crossing by providing a level pedestrian path of travel from kerb to kerb. Cobble stone are not recommended on the top, but on the slopes.
- Raised Crossings also increase visibility of pedestrians and physically slow down traffic allowing pedestrians to cross safely.
- **Raised crossings should be located at:**
  - At Slip Roads (free left turns)
  - Where high-volume streets intersect with low-volume streets, such as at alley entrances, neighborhood residential streets, and service lanes of multi-way boulevards.
  - At Mid-Block Crossings



Sample Drawings Courtesy: Oasis Designs Inc.

Best Practices

Table-Top Crossing at Intersection, London

Bollard spacing shown here is too less...

Spacing between Bollards on a Kerb Ramp must be minimum of **900 MM** (3 feet).

Table top crossing at Intersection, Bogotá

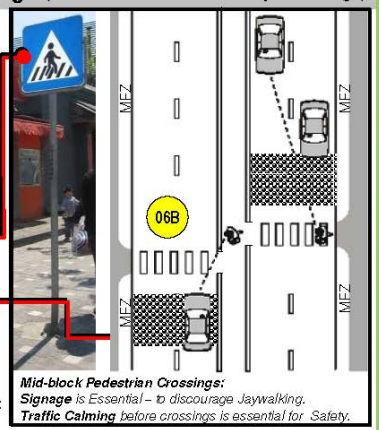
Source:
Street Design Guidelines, UTTIPEC, DDA

06B Pedestrian Crossings (See also 03B for Table-top Crossings)

Pedestrian (and NMV) Crossings are located at mid-block* locations where the Median is punctured minimally to only allow pedestrians and non-motorized modes to cross the roads safely at-grade.

Mid-block crossings must include the following:

- ❑ Signage visible from min. 100m away
- ❑ Auditory signals are required to provide assistance to the differentially-abled.
- ❑ Traffic Calming Treatment **starting least 25 m** before the zebra/ table-top crossing.
- ❑ Minimum 20-second pedestrian signal – either as pelican or as a synchronized signal with the nearest full traffic signals.



Mid-block Pedestrian Crossings:
***Signage** is Essential – to discourage Jaywalking.*
***Traffic Calming** before crossings is essential for Safety.*

Mid-block crossings to be provided at:

- ➢ Mid-block transit/ bus stop locations.
- ➢ Long blocks (>250M)
- ➢ Areas with pedestrian attractors with mid-block entries like shopping areas, schools and community centers.
- ➢ <u>Mid-block crossings must be provided at regular intervals as per following standards</u>:

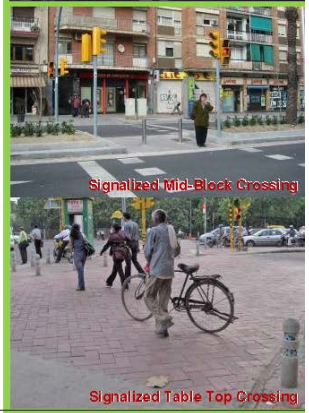
Residential Areas:	**Spacing Range: Every 80 – 250m** Coordinated with entry points of complexes; location of bus/ train stops, public facilities, etc.
Commercial/ Mixed Use Areas:	**Spacing Range: Every 80 – 150m**
High Intensity Commercial Areas:	**Pedestrianize if possible.**

*Mid-block is a location along the Street where no intersecting road exists.

**Source: "American Association of State Highway and Transportation Officials", Pedestrian and Bicycle Safety, Lesson 12 Midblock Crossings

Best Practices

** Extended Footway at Crossings provides better visibility of pedestrians and reduces the crossing distance.



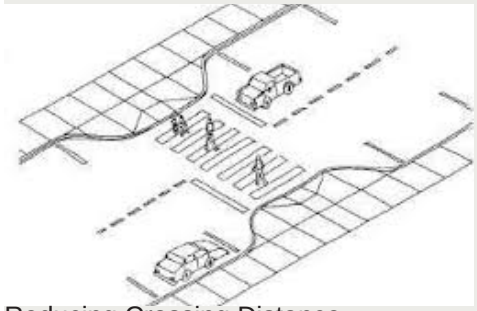
Source:
Street Design Guidelines, UTTIPEC, DDA

Pedestrian Crossing


Pedestrian Median Island


Curb Extensions


Narrowing Drive Lanes


Reducing Crossing Distance


Staggered Crosswalk

Pedestrian Comfort


Pedestrian Island/ Footpath/ Crossing at Same Level


Pedestrian Scale Lighting


Street Trees

Traffic Calming

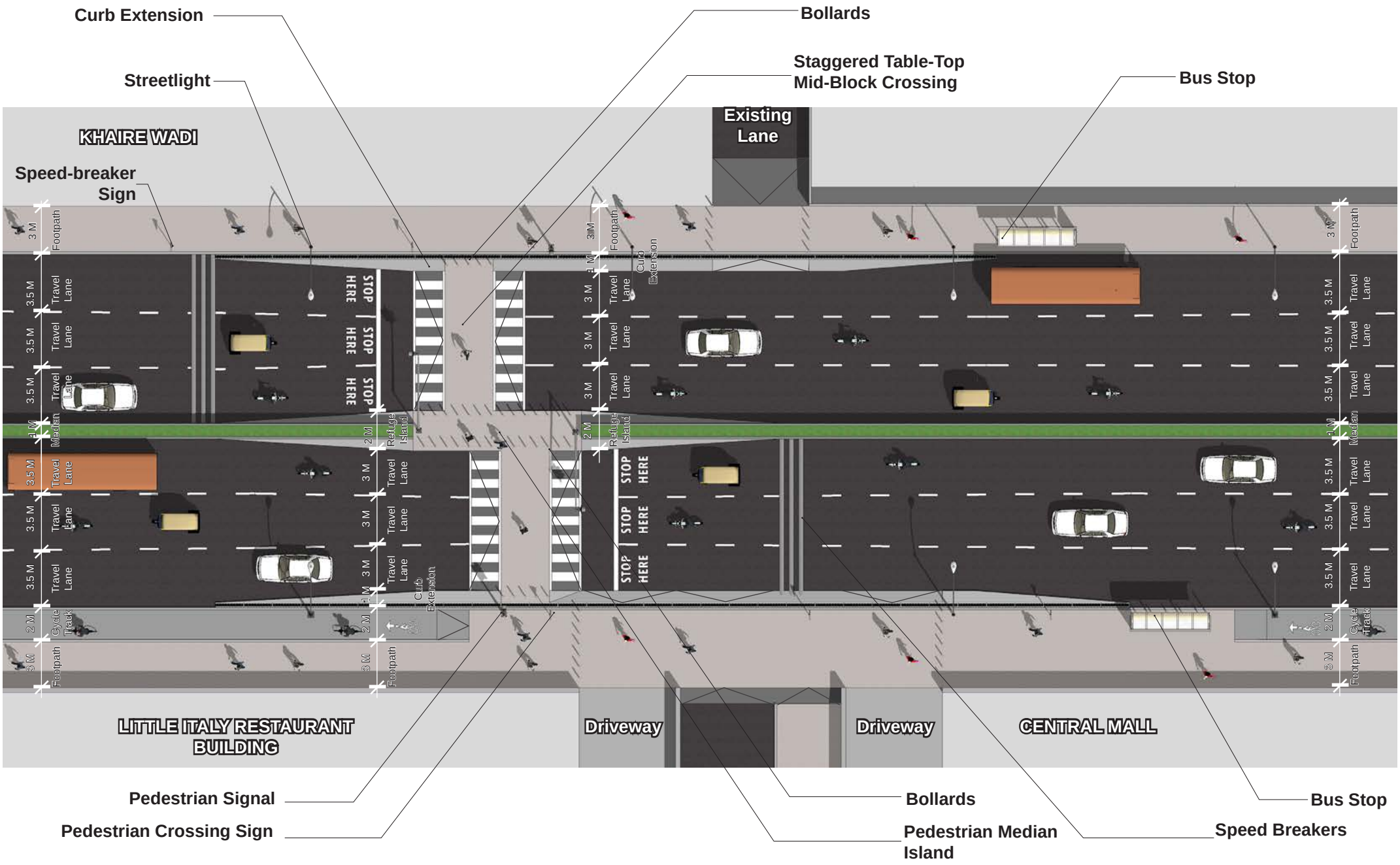

Speed Breakers

Stop Bar/ Pavement/ Lane Markings

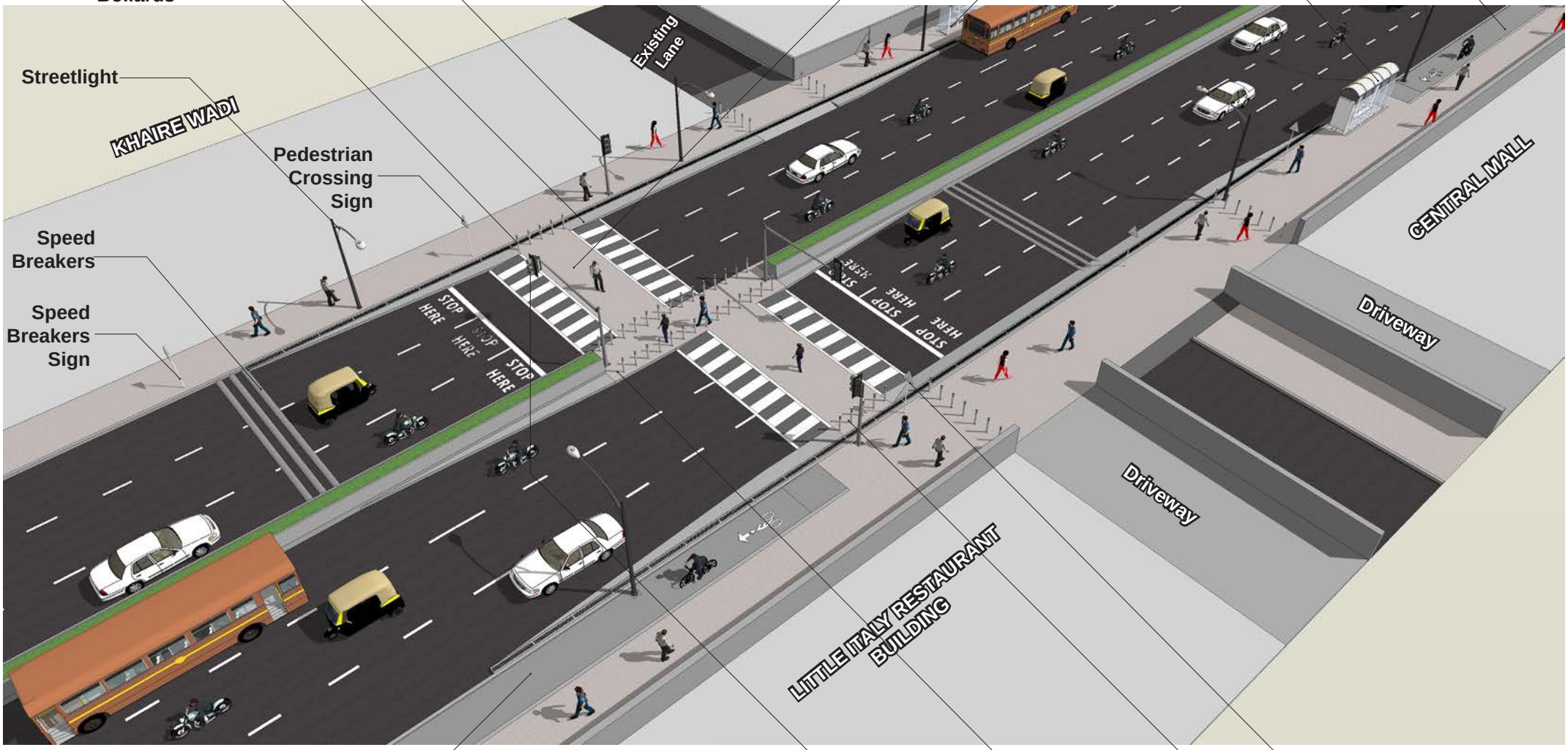

On Street Parking

Signages

Option 1 (6 Lanes, No On-street Parking) - Plan (30 M ROW)



Option 1 (6 Lanes, No On-street Parking) - Aerial View



Option 1 (6 Lanes, No On-street Parking) - Before and After 1 - TODAY

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Option 1 (6 Lanes, No On-street Parking) - Before and After 1 - PROPOSED OPTION 1

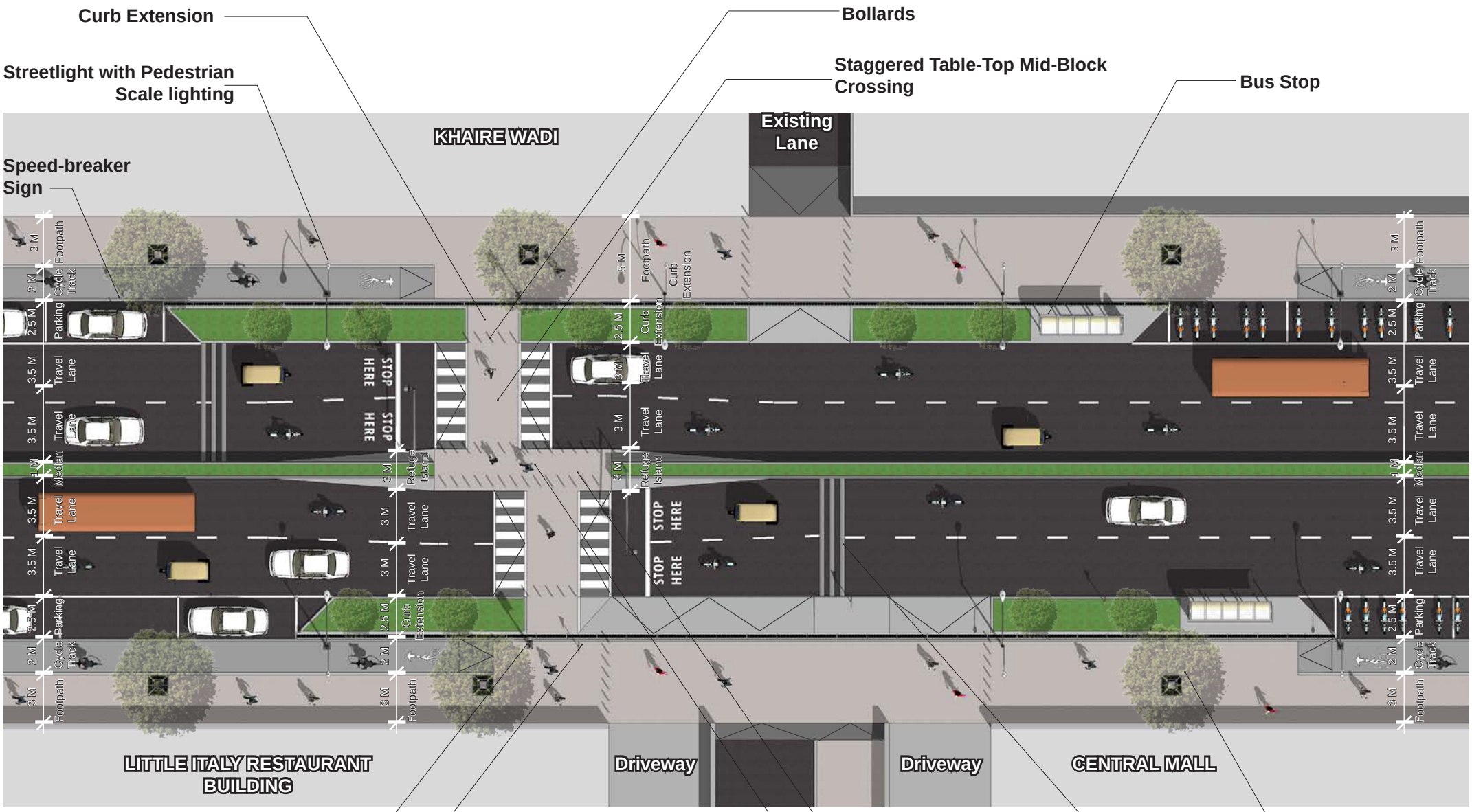
Option 1 (6 Lanes, No On-street Parking) - Before and After 2 - TODAY

Mid-Block Crossing at Central on Ganeshkhind Rd, Pune

Option 1 (6 Lanes, No On-street Parking) - Before and After 2 - PROPOSED OPTION 1

Mid-Block Crossing at Central on Ganeshkhind Rd, Pune

Option 2 (4 Lanes, On-street Parking) - Plan (30 M ROW)



Option 2 (4 Lanes, On-street Parking) - Aerial View

Option 2 (4 Lanes, On-street Parking) - Before and After 1 - TODAY

Mid-Block Crossing at Central on Ganeshkhind Rd, Pune

Option 2 (4 Lanes, On-street Parking) - Before and After 1 - PROPOSED OPTION 1

Option 2 (4 Lanes, On-street Parking) - Before and After 2 - TODAY

Mid-Block Crossing at Central on Ganeshkhind Rd, Pune

Option 2 (4 Lanes, On-street Parking) - Before and After 2 - PROPOSED OPTION 1

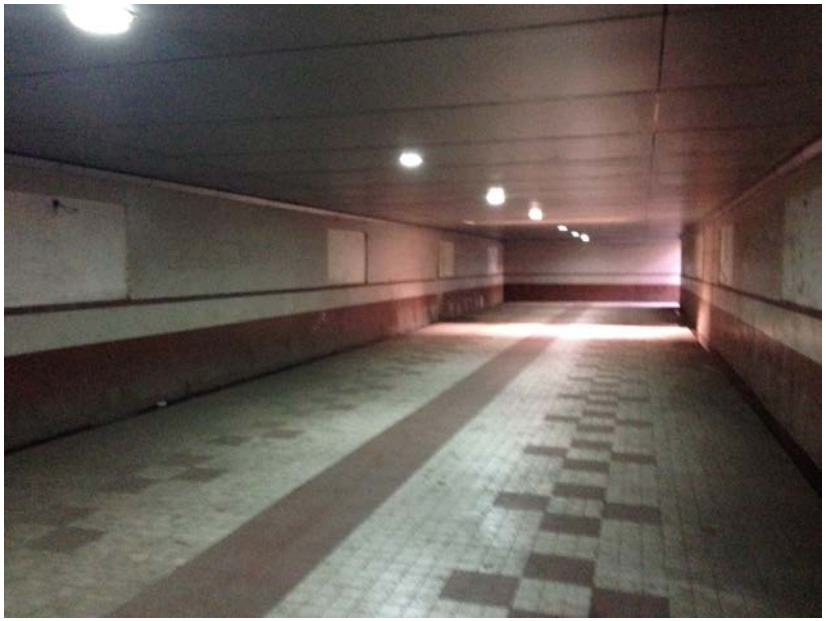
Mid-Block Crossing at Central on Ganeshkhind Rd, Pune

Design Elements- Comparison

No.	Type	Safety & comfort Elements	Existing On-ground	Option 1	Option 2
1	Pedestrian Crossing	**Pedestrian Median Island**	Yes, But Too narrow (1M, Not as per IRC)	Yes (2 M Wide)	Yes (3 M Wide)
2	Pedestrian Crossing	**Curb Extensions**	No	Yes, 1 M Wide	Yes, 2.5 M Wide
3	Pedestrian Crossing	**Narrowing Drive Lanes**	No (3.5 M Lane Width)	Yes (3.0 M Lane Width)	Yes (3.0 M Lane Width)
4	Pedestrian Crossing	**Reducing Crossing Distance**	No (21 M)	Yes (18 M)	Yes (12 M)
5	Pedestrian Crossing	**Staggered Crosswalk**	No	Yes	Yes
6	Pedestrian Comfort	**Island / Footpath / Crossing at Same Continuous Level**	No	Yes	Yes
7	Pedestrian Comfort	**Pedestrian Scale Lighting**	No	No	Yes
8	Pedestrian Comfort	**Street Trees**	No	No	Yes
9	Traffic Calming	**Signal Timing Co-ordination, Near Side Signal location & Mast Arm Extension**	No	Yes	Yes
10	Traffic Calming	**Speed Breakers**	No	Yes	Yes
11	Traffic Calming	**Stop Bar/ Pavement/ Lane Markings**	No	Yes	Yes
12	Traffic Calming	**On Street Parking**	No (But Happening Informally)	No	Yes
13	Traffic Calming	**Signage**	Yes (Minimum)	Yes (Extensive)	Yes (Extensive)
14	Traffic Calming	**Road Diet (Reducing No. of Lanes)**	No	No	Yes (From 6 to 4 Lanes)

Pedestrian Experience and Issues with Subways

Entrance to subways bock either the footpath or the cycle track if there is not enough ROW.



Subways mostly remain unused, further making them unsafe, especially from crime against women. They also end up becoming places for anti-social activities.

Subways are not at all inviting for pedestrians. They tend to be dark and dingy. They are also not perceived as safe from crime.

Subways as they are built today in Pune are not universally accessible, they do not have ramps or lifts.

Subways are not very well maintained which further makes them unusable.

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Pedestrian Experience and Issues with Foot Over Bridges (FOB)

FOBs are not very inviting, pedestrians do not like to climb up and down 2 floors just to cross urban roads.

Pedestrians tend to cross roads at grade as that is most comfortable, even if FOBs are built.

Entrances to FOB tend to block either the footpath or the cycle track if enough ROW is not available.

Entrances to FOB tend to block either the footpath or the cycle track if enough ROW is not available. Also, many times lifts provided are not in working condition, jeopardizing universal accessibility.

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At-Grade Versus Subway Comparison

Performance Measure	At-Grade Options	Pedestrian Subway
Construction Cost	Significantly Less (To Be Calculated)	Approximately Rs. 3-4 Crore (To Be Determined)
Opportunity Cost	Can Build Many More Amenities like Library, Benches, Public Toilets, etc. (Or whatever the Khaire wadi community members want)	N/A
Construction Time	Approximately 3-4 Months (To Be Calculated)	Approximately 2 -3 Years (To Be Determined)
Hindrance to Traffic	Very less for small duration	Huge hindrance for longer duration

Next Steps

- **Engaging elected officials and P.M.C. officials to discuss these at-grade options with aggressive traffic calming.**

- **Discussing these options with the community members who use this facility and taking their input as we go forward.**

- **Interim measures for increasing awareness through school kids awareness campaigns.**

- **Collecting before and after data for signal compliance, travel speeds, vehicle and pedestrian volumes, qualitative surveys for pedestrians and motorists.**

- **Using this process as a case study to design the city-wide policy for building subways and Foot-Over-Bridges as last resort.**

Thank You

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