

DATE: April 6, 2020

TO: Technical Advisory Committee (TAC) of I-25 Parallel Arterial Study

FROM: Michael Baker International (MBI)

SUBJECT: Access Control Plan for I-25 Parallel Arterial Study

The following spacing standards and turn lane requirements were discussed during the Technical Advisory Committee (TAC) meetings for this project. This information is intended to provide guidance to municipalities as new accesses are discussed/approved.

### Intersection Spacing

- Roundabout/Signalized intersections (full-movement) - spaced no closer than ½ mile apart.
- Unsignalized intersections (full-movement) – one every ¼ mile, between signalized intersections
- Unsignalized intersections (partial movement) – minimum of 660 feet from any other intersection/access point
  - This spacing applies to driveways, intersections, and corner clearance between driveways/alleys and street intersections.

### Access Spacing

No private direct access shall be allowed on North IPA (a major arterial roadway) unless one of the following are met:

- 1) the parcel in question has no other reasonable access to the general street system and appropriate auxiliary turn lanes are provided, or
- 2) the alternative direct access to another roadway would cause unacceptable traffic operation and safety problems to the overall traffic flow of the general street system.

When private accesses must be provided, the following shall be considered:

- a) Whenever possible and feasible, shared access shall be provided to serve two or more adjacent properties,
- b) Such access shall continue only until such time that some other reasonable access to a lower functional category street is available and permitted,
- c) No more than one access shall be provided to an individual parcel or to contiguous parcels under the same ownership unless it can be shown that:

- a. Allowing only one access conflicts with safety regulations (i.e. fire access), or
- b. Additional access would significantly benefit safety and operation of the highway or street and is necessary to provide safe and efficient use of the property.
- d) The access shall be limited to right turns only, unless:
  - a. The access has the potential for signalization, in accordance with the spacing requirements listed above,
  - b. Left turns would not create unreasonable congestion or safety problems and not lower the level of service, and
  - c. Alternatives to the left turns would not cause unacceptable traffic operation and safety problems to the general street system.
- e) The private access must be included as part of an access management plan if required by the local entity.

### Turn Lane Requirements

At each intersection/access, the local municipality that is responsible for maintenance of that portion of North IPA, is responsible for identifying when turn lanes are required. Tables 1 and 2, below, outline the required turn bay and taper lengths for the numbered, signalized intersections when a turn lane is required.

Table 1 – Turn bay and taper lengths for North IPA at major intersections

| No. | Intersection              | Northbound (NIPA)       |            |                         |            | Southbound (NIPA)       |            |                         |            |
|-----|---------------------------|-------------------------|------------|-------------------------|------------|-------------------------|------------|-------------------------|------------|
|     |                           | Left Turn               |            | Right Turn              |            | Left Turn               |            | Right Turn              |            |
|     |                           | Storage Plus Decel (ft) | Taper (ft) |
| 2   | NIPA @ Ronald Reagan Blvd | 473                     | 162        | 373                     | 162        | 473                     | 162        | 573                     | 162        |
| 4   | NIPA @ LCR 18             | 418                     | 222        | 678                     | 222        | 373                     | 162        | 373                     | 162        |
| 5   | NIPA @ LCR 16             | 313                     | 162        | 373                     | 162        | 578                     | 222        | 403                     | 222        |
| 6   | NIPA @ LCR 14/WCR 50      | 373                     | 162        | 573                     | 162        | 313                     | 162        | 473                     | 162        |
| 7   | NIPA @ SH 60              | 578                     | 222        | 478                     | 222        | 323                     | 162        | 573                     | 162        |
| 8   | NIPA @ WCR 46             | 373                     | 162        | 373                     | 162        | 403                     | 222        | 578                     | 222        |
| 9   | NIPA @ WCR 44             | 573                     | 162        | 323                     | 162        | 323                     | 162        | 373                     | 162        |
| 10  | NIPA @ WCR 38             | 678                     | 222        | 428                     | 222        | 403                     | 222        | 678                     | 222        |
| 11  | NIPA @ WCR 34             | 573                     | 162        | 473                     | 162        | 323                     | 162        | 473                     | 162        |

Table 2 – Turn bay and taper lengths for major side streets intersecting North IPA

| No. | Intersection              | Eastbound               |            |                         |            | Westbound               |            |                         |            |
|-----|---------------------------|-------------------------|------------|-------------------------|------------|-------------------------|------------|-------------------------|------------|
|     |                           | Left Turn               |            | Right Turn              |            | Left Turn               |            | Right Turn              |            |
|     |                           | Storage Plus Decel (ft) | Taper (ft) |
| 2   | NIPA @ Ronald Reagan Blvd | 490                     | 120        | 390                     | 120        | 290                     | 120        | 390                     | 120        |
| 4   | NIPA @ LCR 18             | 478                     | 222        | 478                     | 222        | 678                     | 222        | 478                     | 222        |
| 5   | NIPA @ LCR 16             | 428                     | 222        | 418                     | 222        | 478                     | 222        | 578                     | 222        |
| 6   | NIPA @ LCR 14/WCR 50      | 373                     | 162        | 373                     | 162        | 573                     | 162        | 323                     | 162        |
| 7   | NIPA @ SH 60              | 678                     | 222        | 578                     | 222        | 578                     | 222        | 428                     | 222        |
| 8   | NIPA @ WCR 46             | 578                     | 222        | 478                     | 222        | 478                     | 222        | 403                     | 222        |
| 9   | NIPA @ WCR 44             | 373                     | 162        | 573                     | 162        | 373                     | 162        | 313                     | 162        |
| 10  | NIPA @ WCR 38             | 526                     | 144        | 426                     | 144        | 276                     | 144        | 251                     | 144        |
| 11  | NIPA @ WCR 34             | 326                     | 144        | 526                     | 144        | 326                     | 144        | 276                     | 144        |

The length of turn lanes and taper lengths for all other intersection/access points connecting to North IPA shall be based on the latest standards in CDOT's Highway Access Code. The latest version as of March 2020 is shown below:

Acceleration and Deceleration Lengths (Includes Taper Length)

| Posted Speed Limit in MPH   | 25    | 30  | 35   | 40   | 45     | 50   | 55     | 60   | 65   | 70   |
|-----------------------------|-------|-----|------|------|--------|------|--------|------|------|------|
| Deceleration Length in feet | 180   | 250 | 310  | 370  | 435    | 500  | 600    | 700  | 800  | 900  |
| Acceleration Length in feet | N/A   | 190 | 270  | 380  | 550    | 760  | 960    | 1170 | 1380 | 1590 |
| Transition Taper Ratio      | 7.5:1 | 8:1 | 10:1 | 12:1 | 13.5:1 | 15:1 | 18.5:1 | 25:1 | 25:1 | 25:1 |

Storage Lengths

|                                |          |    |    |     |     |     |
|--------------------------------|----------|----|----|-----|-----|-----|
| Turning Vehicles Per Peak Hour | below 30 | 30 | 60 | 100 | 200 | 300 |
| Required Lane Length in Feet   | 25       | 40 | 50 | 100 | 200 | 300 |