Traffic and Transportation
Engineering Design Manual

Prepared by the City of Irving
Traffic and Transportation Department

Adopted:
March 10, 2022
Table of Contents

1 General Requirements ........................................................................................................5

1.1 Introduction .................................................................................................................5

1.1.1 Definitions ..............................................................................................................5

1.1.2 Authority ...............................................................................................................7

1.1.3 General Provisions ...............................................................................................7

1.1.4 Interpretation .........................................................................................................7

1.1.5 Costs ......................................................................................................................7

1.1.6 Amendment ............................................................................................................7

1.1.7 Details and Standards ............................................................................................8

1.1.8 Design Exceptions ...............................................................................................8

1.2 Submittal Requirements .............................................................................................8

1.2.1 Checklist ..............................................................................................................8

1.2.2 Size ......................................................................................................................8

1.2.3 Title Sheet ............................................................................................................8

1.2.4 North Arrow .........................................................................................................9

1.2.5 Scale ...................................................................................................................9

1.2.6 Title Block ...........................................................................................................9

1.2.7 Engineer’s Seal .....................................................................................................9

1.2.8 Survey Requirements ..........................................................................................9

1.2.9 Subsurface Utility Exploration (SUE) ..................................................................9

1.2.10 Right-of-Way Sheet ............................................................................................9

1.2.11 Construction Timeline ......................................................................................9

1.2.12 Plat .......................................................................................................................10

1.2.13 General Notes Sheet ........................................................................................10

1.2.14 Grading Plan ......................................................................................................10

1.2.15 Demolition Plan ................................................................................................10

1.2.16 Paving Plan .........................................................................................................10

1.2.17 Traffic Signal Plans ...........................................................................................12

1.2.18 Temporary Traffic Control Plans ........................................................................13
2 Roadway Design Requirements ................................................................. 13

2.1 Street Design ....................................................................................... 13
  2.1.1 Centerline ....................................................................................... 13
  2.1.2 Widths ............................................................................................ 13
  2.1.3 Grades ............................................................................................ 13
  2.1.4 Intersections ................................................................................... 14
  2.1.5 Pavement Cross Section Geometry ................................................ 14
  2.1.6 Pavement Cross Section Sheets ..................................................... 14
  2.1.7 Design Speed ................................................................................ 15
  2.1.8 Horizontal Curves .......................................................................... 15
  2.1.9 Vertical Curves ............................................................................... 15
  2.1.10 K Factors ...................................................................................... 15
  2.1.11 Curbs ............................................................................................ 15
  2.1.12 Curb Radii .................................................................................... 15
  2.1.13 Driveways ...................................................................................... 16
  2.1.14 Inlets ............................................................................................. 16
  2.1.15 Manholes ...................................................................................... 16
  2.1.16 Use of Parkway ............................................................................ 16
  2.1.17 Medians ......................................................................................... 17
  2.1.18 Turn Lanes ................................................................................... 17
  2.1.19 Sight Visibility ............................................................................... 17
  2.1.20 Fences/Screening Walls ................................................................. 18
  2.1.21 Gates ............................................................................................ 18
  2.1.22 On-Street Parking ........................................................................ 18
  2.1.23 Private Streets .............................................................................. 18
  2.1.24 Retaining Walls ............................................................................ 18

2.2 Pedestrian Facilities ............................................................................ 19
  2.2.1 Sidewalks ....................................................................................... 19
  2.2.2 Obstructions ................................................................................... 19
  2.2.3 Sidewalk at Curb Inlets ................................................................. 19
  2.2.4 Barrier Free Ramps ........................................................................ 19
  2.2.5 Crosswalks ..................................................................................... 20
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.2.6</td>
<td>Bus Stop Pads</td>
<td>20</td>
</tr>
<tr>
<td>2.3</td>
<td>Alleys</td>
<td>20</td>
</tr>
<tr>
<td>2.3.1</td>
<td>Locations</td>
<td>20</td>
</tr>
<tr>
<td>2.3.2</td>
<td>Intersections</td>
<td>20</td>
</tr>
<tr>
<td>2.3.3</td>
<td>Grades</td>
<td>20</td>
</tr>
<tr>
<td>2.3.4</td>
<td>Design Speed</td>
<td>21</td>
</tr>
<tr>
<td>2.3.5</td>
<td>Horizontal Curves</td>
<td>21</td>
</tr>
<tr>
<td>2.3.6</td>
<td>Vertical Curves</td>
<td>21</td>
</tr>
<tr>
<td>2.3.7</td>
<td>K Factors</td>
<td>21</td>
</tr>
<tr>
<td>2.4</td>
<td>Street Lighting</td>
<td>21</td>
</tr>
<tr>
<td>3</td>
<td>Traffic Signal Requirements</td>
<td>22</td>
</tr>
<tr>
<td>3.1</td>
<td>Plans</td>
<td>22</td>
</tr>
<tr>
<td>3.2</td>
<td>Developer Proposed Signals</td>
<td>22</td>
</tr>
<tr>
<td>3.3</td>
<td>Costs</td>
<td>22</td>
</tr>
<tr>
<td>3.4</td>
<td>Conduit</td>
<td>22</td>
</tr>
<tr>
<td>3.5</td>
<td>Communications</td>
<td>23</td>
</tr>
<tr>
<td>3.6</td>
<td>Color</td>
<td>23</td>
</tr>
<tr>
<td>3.7</td>
<td>Illuminated Street Name Signs</td>
<td>23</td>
</tr>
<tr>
<td>3.8</td>
<td>Temporary Traffic Signals</td>
<td>23</td>
</tr>
<tr>
<td>4</td>
<td>Construction Phasing/Traffic Control</td>
<td>24</td>
</tr>
<tr>
<td>4.1</td>
<td>Construction Phasing Plan</td>
<td>24</td>
</tr>
<tr>
<td>4.2</td>
<td>Temporary Traffic Control</td>
<td>24</td>
</tr>
<tr>
<td>4.3</td>
<td>Permanent Traffic Control</td>
<td>24</td>
</tr>
<tr>
<td>4.4</td>
<td>Work in TxDOT Right-of-Way</td>
<td>25</td>
</tr>
<tr>
<td>4.5</td>
<td>DART Coordination</td>
<td>25</td>
</tr>
<tr>
<td>APPENDIX</td>
<td></td>
<td>26</td>
</tr>
</tbody>
</table>
1 General Requirements

1.1 Introduction

This Manual represents a basic set of technical requirements of the Traffic and Transportation Department for the City and is intended for the design of traffic and transportation infrastructure for both Private Development and City Capital Improvement Program (CIP) projects. The principles, standards and requirements provided for herein shall be considered the minimum requirements for the design of adequate public facilities within the City. In such cases where other Federal, State, or City ordinances or regulations are more restrictive in their requirements, the more restrictive shall govern.

1.1.1 Definitions

- **Access Management Manual**: The current version of the City’s Access Management Manual, available online [here](#).
- **City**: The City of Irving, Texas.
- **Contractor**: The firm responsible for the construction of the Project, either working for the Developer or, if a public project, for the Capital Improvement Program Department.
- **Design Engineer**: A registered Texas Professional Engineer responsible for the design of the Project (the engineer of record), working for the City or other public agency, the City’s engineering consultant, or a private Developer.
- **Developer**: A person or entity developing real property for private uses.
- **Development/Private Development**: A Project consisting of Private Improvements made to private property, but which may also include Public Improvements within a public right-of-way or easement, as required by the City, in order to provide municipal services and safe access to the property.
- **Director**: The Director of the Traffic and Transportation Department for the City (i.e. City Traffic Engineer).
- **Engineering Design Manual (or Manual)**: The name by which this manual is referred, an engineering design manual issued by the City’s Traffic and Transportation Department.
• **Geotechnical Engineer:** The City’s materials testing laboratory and geotechnical consultant, a registered Texas Professional Engineering Firm.

• **Master Thoroughfare Plan:** The current version of the City’s *Master Thoroughfare Plan*, available online [here](#).

• **Owner:** The individual or entity legally and financially responsible for the Project (typically either a Private Developer, the City or other public agency).

• **Parkway:** The public area between the back-of-curb and the right-of-way line.

• **Plans:** The engineering plans, reports, specifications, submissions, and addenda issued by the Design Engineer for the construction of the Project.

• **Plat:** A map showing the legal boundaries of a parcel of land, as prepared by a registered Texas Professional Land Surveyor.

• **Private Improvements:** Infrastructure constructed on private property as part of a Private Development (i.e. the City or other public agency is not the Owner).

• **Project:** The complete infrastructure facility being constructed, typically as detailed in the Plans.

• **Public Improvements:** Infrastructure constructed within a public right-of-way or public easement (such as public streets, storm drainage systems, water mains, wastewater mains, pedestrian improvements, traffic control devices, street lights, etc.).

• **Standard Details/Standard Specifications:** The current version of the City’s “Standard Details” and “Standard Specifications”, available online [here](#).

• **Street Lighting Design Standards:** The current version of the City’s *Street Lighting Design Standards*, available online [here](#).

• **TMUTCD:** The current version of the "Texas Manual on Uniform Traffic Control Devices", the standard manual governing the use of traffic signs, signals, and pavement markings.

• **Traffic and Transportation Department:** The department of the City responsible for the planning, design, maintenance, and operation of the City’s transportation network.

• **Traffic Engineer:** The City’s Traffic and Transportation Department Director or his designee, a registered Texas Professional Engineer.
Traffic and Transportation Engineering Design Manual

- **Traffic Impact Analysis**: A study, sealed by a registered Texas Professional Engineer, which assesses the effects a new or expanding development’s traffic will have on the surrounding transportation network.

### 1.1.2 Authority

The Director or his designee is authorized to enforce minimum standards as contained in this Manual and to require additional or revised design standards when, based on the standards published by the Texas Department of Transportation (TxDOT), guidelines contained in the Texas Manual on Uniform Traffic Control Devices (TMUTCD), the publications of the Institute of Transportation Engineers (ITE), Texas A&M Transportation Institute (TTI), Federal Highway Administration (FHWA), and the American Association of State Highway and Transportation Officials (AASHTO), and professional engineering judgment, such additional or revised standards are necessary to ensure proper function of the City's street system for the safety and welfare of the public.

### 1.1.3 General Provisions

These standards contained herein shall govern engineering design work necessary for construction in public rights-of-way or public easements. This may include engineering design work performed by Design Engineers regardless of whether those engineers are working for Developers, Design Engineers working as consultants for the City or other public agencies, and/or the City’s in-house Design Engineers.

### 1.1.4 Interpretation

The Director shall be the final authority regarding the interpretation of the provisions of this Manual.

### 1.1.5 Costs

Financial hardship shall in no way constitute justification for waiving the requirements of this Manual.

### 1.1.6 Amendment

The City may amend this Manual. A list of revisions shall be included as part of any future updates to this Manual. The Design Engineer is responsible for verifying that Project design conforms to the current version of this Manual (or other external manuals and/or guidelines herein referred) as posted on the City’s website. The City shall in no way be responsible for any increased costs due to amendments to this Manual.
1.1.7 Details and Standards

All details and specifications used shall be City’s Standard Details and Standard Specifications unless otherwise approved by the Traffic Engineer. No modification to the Standard Details and/or Standard Specifications relevant to the requirements of the Traffic and Transportation Department shall be permitted unless authorized in writing by the Director.

1.1.8 Design Exceptions

Any deviation from this Manual shall be approved in writing by the Traffic Engineer. A written request for design exceptions shall be submitted by the Design Engineer explaining the reasoning for such deviation (such as physical constraints of the Project, existing conditions limiting proposed improvements, etc.). Requests shall be evaluated by the City on a case by case basis and shall in no way establish a precedent for approval of such design exceptions for other Projects.

Any approved design exception shall not be construed to relieve the Design Engineer of the ultimate responsibility for the engineering design of the Project.

1.2 Submittal Requirements

The Design Engineer shall be responsible for the applicability and accuracy of information furnished in their design. Acceptance by the City of the Plans for construction shall not be construed to relieve the Design Engineer of the ultimate responsibility for the engineering design of the Project.

1.2.1 Checklist

With all plan submittals, the Design Engineer shall provide the completed Traffic and Transportation Department Plan Review Checklist to the Traffic Engineer. The checklist is available in Appendix A.

1.2.2 Size

Plans shall be a 22-inch by 34-inch (full size) or a 11-inch by 17-inch (half size) set. All digital plans shall be 300 DPI and flattened prior to electronic submittal.

1.2.3 Title Sheet

The title sheet shall be the first sheet in the plan set, and shall contain the project title, project limits, an overall map of the City highlighting the specific project location(s), and a table of contents, with the numerical listing of all sheets in the Plans. Avoid the use of alpha-numeric sheet numbers such as ‘WW-1’, ‘D-1’, etc. All sheet numbers shall correspond to its page number in the plan set. (For instance, so that sheet ‘4’ will correspond to the 4th page in the pdf format and hard copy document submittal).
1.2.4 North Arrow

A North arrow shall be shown on each sheet, typically pointed up or to the right.

1.2.5 Scale

All Plans shall be set to an appropriate engineering scale so as to be clearly legible and consistent. An engineering bar scale shall be shown on each sheet.

1.2.6 Title Block

Excluding the title sheet, each sheet shall show a title block stating the Project (and/or plat) name, design firm name and Texas Board of Professional Engineer’s firm number.

1.2.7 Engineer’s Seal

The seal, signature, and date of the Design Engineer along with the Engineer Firm Registration Number shall be affixed to each sheet after all City comments have been addressed and the Plans are approved. A copy of the final Plans shall be given to the Traffic Engineer.

1.2.8 Survey Requirements

The Project shall be surveyed utilizing Texas State Plane Coordinate System (NAD 83 CORS, GRID, Zone Texas North Central, Code 4202). Northings and Easting shall have a precision of four (4) decimal places; linear and vertical datum distance shall have a precision of two (2) decimal places.

1.2.9 Subsurface Utility Exploration (SUE)

In situations where a potential utility conflict could negatively impact the City’s transportation system, the Traffic Engineer may direct the Design Engineer to perform a subsurface utility exploration to more accurately identify the potential conflict.

1.2.10 Right-of-Way Sheet

A right-of-way sheet shall be submitted with all new Developments and street paving projects showing the right-of-way limits, easements, and coordinates for all property corners.

1.2.11 Construction Timeline

Upon request of the Traffic Engineer, a construction timeline (Gantt chart format) estimating the progression of work and anticipated completion date.

For purposes of estimating the Project’s construction timeline, note that work shall be allowed only during regular City working days between 7:00 a.m. and 6:00 p.m. No work shall be done
nights, Saturdays, Sundays, or any City holidays unless special permission is given by the Capital Improvement Program Department. For private development projects, if special permission is granted, the Developer shall pay the cost of all overtime necessary to inspection the Project beyond the normal working hours.

1.2.12 Plat

For Developer plan sets, the property’s current or proposed plat shall be included in the Plans for reference only. The plat shall be placed immediately after the Title Sheet.

1.2.13 General Notes Sheet

A general notes sheet shall be included in the Plans, and shall include general notes from all City departments, including the current version of the Traffic and Transportation Department’s general notes, as supplied by the Traffic Engineer.

1.2.14 Grading Plan

A grading plan sheet shall be included in the Plans.

1.2.15 Demolition Plan

In cases where an existing public infrastructure is being removed, a demolition plan sheet shall be included in the Plans. The demolition plan shall identify any public infrastructure to be salvaged.

1.2.16 Paving Plan

A. Plan View

The plan view of the roadway design shall, to the extent applicable, clearly illustrate and label the following existing and/or proposed information:

1. Roadways (street name, width measured consistently from the face-of-curb or back-of-curb, pavement cross section and material type, label public/private)
2. Alleys (width, material type, invert size, label public/private)
3. Sidewalks (width)
4. Barrier free ramps (proposed type)
5. DART bus stop location (bus stop pad)
6. Driveways (width, label if fire lane)
7. Curb radii (measured from the face-of-curb)
8. Centerline (points of inflection, curve data, survey information, placed in center of ROW)
9. Right-of-way (type, width, Dallas County Volume and Page Number and/or Deed Records Dallas County Texas (DRDCT))
10. Easements (type, width, Dallas County Volume and Page Number and/or DRDCT)
11. Dedications (type, width, dedication method)
12. Water utilities (location of fire hydrants, water valves, water manholes)
13. Wastewater/sanitary sewer utilities (manholes)
14. Drainage utilities (manholes, inlets, channels, flumes)
15. Franchise utilities (boxes, poles, other ground-placed infrastructure)
16. Existing elements within right-of-way (street lights, mail boxes, monument signs, etc.)
17. Street lights (proposed and/or to be relocated)
18. Retaining walls (height and location, label public/private)
19. Fences/screening walls (height and location)
20. Landscaping (trees, sprinkler system, planters, ground cover)

B. Profile View

The profile view of the roadway design shall, to the extent applicable, clearly illustrate and label the following existing and/or proposed information:
   1. Roadway grades (at top of curb)
   2. Top of ground at right-of-way (left and right)
   3. Point of inflection (PI) data
   4. Vertical curve data (length, K factor)
   5. Drainage utilities (inlet location stationed from center of inlet)

C. Design Information

The proposed design shall, to the extent applicable, clearly illustrate and label the following information:
   1. Centerline stationing (dimensions to right-of-way and face-of-curb or back-of-curb)
   2. Top of curb elevation at point of curvature (PC) and point of tangency (PT) of roadways
   3. Top of curb elevation at point of curvature (PC) and point of tangency (PT) of driveways and alleys
   4. Top of curb elevation at geometric high points and low points
   5. Top of curb elevation at center of storm inlets
   6. Turn lanes (storage length, radii)
   7. Crosswalk alignment
   8. Monolithic median noses (width)
   9. Street lights (proposed and/or to be relocated)
   10. Retaining walls (height and location, label private/public)
   11. Fences/screening walls (height and location)
   12. Landscaping impacting sight visibility
1.2.17 Traffic Signal Plans

A. Plan View

The plan view of the proposed traffic signal design shall, to the extent applicable, clearly illustrate and label the following existing and/or proposed information:

1. Roadways (street name, width measured from the face-of-curb, material type, label public/private)
2. Alleys (width, material type, invert size, label public/private)
3. Sidewalks (width)
4. Barrier free ramps (proposed type)
5. DART bus stop location (bus stop pad)
6. Driveways (width, label if fire lane)
7. Curb radii (measured from the face-of-curb)
8. Centerline (points of inflection, curve data, survey information)
9. Right-of-way (type, width, Dallas County Volume and Page Number and/or DRDCT)
10. Easements (type, width, Dallas County Volume and Page Number and/or DRDCT)
11. Dedications (type, width, dedication method)
12. Water utilities (location of fire hydrants, water valves)
13. Wastewater/sanitary sewer utilities (manholes)
14. Drainage utilities (manholes, inlets, channels, flumes)
15. Franchise utilities (facility type, boxes, ground-placed infrastructure)
16. Lane geometry/lane usage /channelization

B. Design Information

The proposed design shall, to the extent applicable, clearly illustrate and label the following information:

1. Manufacture’s part number and type of equipment specified (in accordance with the Department’s Approved Products List and/or Specifications)
2. Typical proposed mast arm combination signal with pedestrian signal, push button, luminaire, and signage
3. Proposed traffic signal controller cabinet and concrete apron
4. Ground box type with concrete apron
5. Junction boxes
6. Proposed conduit
7. Proposed Video Imaging Vehicle Detection System (VIVDS) camera
8. Proposed Opticom
9. VIVDS detection zones
10. Conduit run number
11. Signal head number
12. Sign label
13. VIVDS camera label
14. Proposed sign panel and post
15. Proposed electrical service
16. Traffic signal equipment (cabinet, battery backup, VIVDS camera, etc.)
17. Signal phasing
18. Conduit and Cable Chart
19. Wire inside pole (feet)
20. Signal head chart
21. Ground box summary
22. Summary of LED signal indications
23. Cable termination chart
24. Phase sequence
25. VIVDS detection zone details
26. Sign summary
27. Accessible Pedestrian Signal (APS)
28. Signal head and pole placement
29. Relevant Traffic and Transportation Department traffic signal details

1.2.18 Temporary Traffic Control Plans

The proposed design shall, to the extent applicable, clearly illustrate and label the following information:
   1. TMUTCD sign layout
   2. Lane marking layout (with taper lengths)
   3. Pedestrian facilities

2 Roadway Design Requirements

2.1 Street Design

2.1.1 Centerline
Roadway centerlines shall be placed in the center of the right-of-way. The centerline of curves shall be tangent to the centerline of street at each end of curve.

2.1.2 Widths
All pavement widths and right-of-way widths shall conform to the Master Thoroughfare Plan.

2.1.3 Grades
Roadway grades shall be a minimum of one percent (1%) and a maximum of six percent (6%) in order to insure proper flow of surface drainage toward inlets. Steeper grades may be permitted
on local residential streets and where required by topographical and/or natural features, as approved by the Director and the City Fire Marshall.

Roadway grades across a pedestrian crosswalk shall not exceed two percent (2%) per ADA requirements. To ensure compliance with these requirements, the recommended maximum slope is one and one-half percent (1.5%).

2.1.4 Intersections

Transition areas through intersections shall be designed in such a manner as to ensure ride-ability (i.e. no “valley gutters” across intersection) of the pavement while maintaining proper drainage.

Topographical representations of each proposed intersection at a one-tenth-foot (0.1’) contour interval to indicate proper drainage shall be included in the Plans.

In cases where a proposed roadway intersects an existing street, a maximum roadway grade of three percent (3%) shall be extended for a minimum of seventy-feet (70’), as measured from the face-of-curb of the existing intersecting roadway (see 2.1.3 for additional crosswalk roadway grade requirements).

2.1.5 Pavement Cross Section Geometry

**Parabolic Crown Section:** A parabolic crown pavement cross section shall be utilized for all undivided streets forty-four-foot (44’) wide [4U-2] or less. A parabolic crown better forces water to the gutter line and shall be designed such that at least one lane of traffic will not be submerged in a twenty-five (25) year rain event. Undivided streets shall have a six-inch (6”) parabolic crown, with the exception of thirty-one-foot (31’) or thirty-seven-foot (37’) wide back-to-back streets, which shall have a five-inch (5”) parabolic crown.

**Rooftop Section:** A rooftop, or straight slope cross section shall be utilized only for streets which contain medians, where the hand-poured median opening allows for a smoother transition. Divided streets shall have a cross fall of two percent (2%).

**Combination Section (5U):** For a 5U thoroughfare a combination cross-section shall be utilized. The cross-section shall consist of a two percent (2%) cross fall for the through lanes and a parabolic crown for the center continuous turn lane. See City Detail Sheet PV-03.

2.1.6 Pavement Cross Section Sheets

The Plans shall include pavement cross sections at fifty-foot (50’) intervals.
2.1.7 **Design Speed**

The Traffic Engineer shall set the design speed of all proposed streets.

Unless otherwise directed by the Traffic Engineer, the design speed of existing streets shall be five miles-per-hour (5 mph) above the posted speed.

2.1.8 **Horizontal Curves**

Horizontal curves shall conform to the current edition of AASHTO’s “Policy on Geometric Design of Highway and Streets”.

On thoroughfare streets a tangent section, minimum of one hundred feet (100’) in length, may be required between two horizontal curves.

2.1.9 **Vertical Curves**

A vertical curve shall be required when the algebraic difference in grade is one percent (1.0 %) or greater.

Vertical curves shall conform to the current edition of AASHTO’s “Policy on Geometric Design of Highway and Streets”.

2.1.10 **K Factors**

K factors shall conform to the current edition of AASHTO’s “Policy on Geometric Design of Highway and Streets”.

2.1.11 **Curbs**

Curbs shall be six-inches (6”) in height, refer to the City Standard Detail Sheet PV-01. Unless approved by the Traffic Engineer, mountable curbs shall not be permitted.

Utility manholes or valves shall not be located within the proposed or existing curb line.

Necessary modifications to the existing eight-inch (8”) granite curbs in the Las Colinas area shall be evaluated by the Traffic Engineer on a case by case basis.

2.1.12 **Curb Radii**

All curb radii shall be clearly indicated in the Plans and shall conform to the *Access Management Manual* and applicable detail sheet.
2.1.13 Driveways

All driveway locations shall conform to the Access Management Manual.

The centerline of any proposed driveway shall be perpendicular to the centerline of the street to which it connects.

The Plans shall have profiles for all existing driveways extending at least to the right-of-way line.

Driveways shall not be located at the geometric low point of a vertical curve.

Water meters and/or valves shall not be placed in driveways.

2.1.14 Inlets

Low point inlets shall be placed at the geometric low point of a vertical curve.

Storm inlets (including the beginning of a recessed inlet curb transition) shall be located no closer than ten-feet (10’) from the point of curvature (PC) of an adjacent driveway approach curb return.

Storm inlets shall not be located within the transition of a turn lane. Any existing inlet located within a proposed turn lane transition shall be relocated.

Grate inlets or slotted drains shall not be permitted on public streets or public alleys.

2.1.15 Manholes

Where applicable, manholes shall be centered in the travel lane and not located within the vehicle’s wheel path.

2.1.16 Use of Parkway

To protect the integrity of the pavement subgrade and to maintain proper sight line visibility, proposed trees should not be located within the Parkway.

No fence, wall, screen, sign, structure, landscaping rock (greater than four-inches (4”) in height), or foliage of hedges, trees, bushes, or shrubs shall be erected, planted or maintained in any Parkway.
2.1.17 **Medians**

All median openings shall conform to the *Access Management Manual*.

Interlocking concrete pavers shall be placed in all medians between six-feet (6’) and three-foot (3’) wide measured from back-of-curb to back-of-curb. A four-inch (4”) thick non-reinforced sleeper slab shall be installed underneath all interlocking concrete median pavers.

Medians wider than six-feet (6’) shall be sodded natural ground and/or landscaped as directed by the City Engineer. Any trees proposed to be installed in medians should be done in accordance with recommendations provided by the City’s Geotechnical Engineering firm. All proposed landscaping shall be reviewed and approved by the Traffic Engineer, and no landscape shall be installed which could potentially create a current or future sight visibility obstruction.

No trees or shrubs of any kind shall be placed in median eight-feet (8’) wide or less.

Medians wider than six feet AND in excess of a 4:1 slope shall be paved with either concrete pavers as specified above, or upon approval of the Traffic Engineer, with four-inch (4”) thick reinforced stamped concrete colored per the City’s specification.

All median noses shall be variable height monolithic concrete in accordance with the relevant *Standard Detail*.

2.1.18 **Turn Lanes**

Turn lanes shall be located in accordance with the *Master Thoroughfare Plan* and/or the *Access Management Manual*.

Proposed turn lane designs shall be submitted on a separate plan sheet.

Existing street lights in conflict with proposed turn lane improvements shall be relocated in accordance with the City’s *Street Lighting Design Standards*.

2.1.19 **Sight Visibility**

All intersections shall be free of visual obstructions based on the sight visibility triangle criteria in the *Access Management Manual*. Existing signs, fences, trees, and vegetation located within the project area shall be evaluated for potential sight visibility obstructions.

Sight line exhibits, when required by the Traffic Engineer, shall be provided to the Traffic and Transportation Department for review.
2.1.20  **Fences/Screening Walls**

All proposed fences/screening walls shall be placed in accordance with the City’s Fence Ordinance, Chapter 15 of Development Standards and Building Codes.

The Design Engineer shall verify all proposed fences/screening walls are located so as to not cause a visual obstruction.

Fences/screening walls shall not be placed in any existing or proposed sight easement.

No portion of the proposed screening wall shall be located closer than one-foot (1’) away from the right-of-way.

2.1.21  **Gates**

Gates shall not be constructed across public streets or within the City right-of-way.

Vehicular gates shall have a minimum setback from the street, as defined in the Access Management Manual, Figures 4.15 A-C.

2.1.22  **On-Street Parking**

Upon approval by the Director, parallel parking bays may be constructed according to the relevant City detail. Angled or perpendicular parking directly from a public street shall not be permitted.

2.1.23  **Private Streets**

Private streets shall be designed and constructed to the same standards as public streets.

Any proposed gates across a private street shall meet the gate requirements as defined in the City’s Access Management Manual.

2.1.24  **Retaining Walls**

Any proposed retaining walls not associated with a Capital Improvement Program Department project shall be privately maintained. No portion of the proposed retaining wall shall be located closer than one-foot (1’) away from the right-of-way.

Privately maintained retaining walls shall not be used to support public infrastructure.
2.2 Pedestrian Facilities

2.2.1 Sidewalks
Concrete sidewalks shall be installed along all proposed streets, along all public right-of-way adjacent to a proposed Development, and along all substantial property improvements exceeding fifty-one percent (51%) of the Dallas County Appraisal District’s most current year’s property value.

The proposed sidewalk width and location, as determined by the City, shall be either:

- Six-foot (6’) wide, directly adjacent to the back-of-curb, or
- Five-foot (5’) wide, offset one-foot (1’) from the right-of-way line, allowing a natural ground parkway.

It is the responsibility of the Design Engineer to verify that all pedestrian facilities meet the current TDLR / ADA requirements.

2.2.2 Obstructions
The layout of proposed sidewalk shall take into account and gently meander around proposed and existing fire hydrants, streetlight poles, traffic signal poles, traffic signs poles, and trees. Existing or proposed manholes, water meters or water valves shall not be located within the proposed sidewalk.

Steps, street furniture, and/or other barriers shall not be permitted within the right-of-way.

2.2.3 Sidewalk at Curb Inlets
The top of a curb inlet shall not be considered as sidewalk when measuring the pedestrian pathway. Any sidewalk directly adjoining curb inlets shall not be doweled together, per the relevant detail.

2.2.4 Barrier Free Ramps
Barrier free ramps shall be installed at all pedestrian facilities crossing a public or private street. All new ramps shall adhere to the current City and/or TxDOT standard details.

It is the responsibility of the Design Engineer to verify that all pedestrian facilities meet the current TDLR / ADA requirements.
2.2.5 Crosswalks

Crosswalks shall be illustrated at all signalized intersections, and across all public streets intersecting a thoroughfare as defined by the Master Thoroughfare Plan. Crosswalks shall typically be ten-feet (10') wide (1’ border + 8’ walk + 1’ border). At T-intersections or in other situations as directed by the Traffic Engineer, crosswalks shall be eight-feet (8’) wide (1’ border + 6’ walk + 1’ border). The edge of the crosswalk shall be two-feet (2’) behind the projected face- of-curb.

2.2.6 Bus Stop Pads

Bus stop pads shall be installed at all marked DART bus stop locations. Dual bus stop pads shall be installed in areas where there is an existing bus shelter, as directed by the Traffic Engineer. See www.dart.org for bus route information.

2.3 Alleys

Existing public alleys, either improved or unimproved, shall be designed in accordance with the requirements of this section. Public alleys shall be a minimum of sixteen-feet (16’) in width, a twenty-foot (20’) easement width, with a three-inch (3”) invert.

All new alleys proposed in conjunction with a Private Development shall be private and meet the requirements of the Access Management Manual.

2.3.1 Locations

Alley approach locations (both public and private) shall conform to the driveway spacing requirements of the Access Management Manual. See Figure 6.4.

2.3.2 Intersections

Alleys (both public and private) shall not intersect any streets identified as Arterials or Major Collectors on the Master Thoroughfare Plan. All alley intersections with streets shall be perpendicular within a five-degree (5°) tolerance at the intersection of the right-of-way and/or easement lines.

2.3.3 Grades

Alley grades for public alleys shall be a minimum of one percent (1%) and a maximum of six percent (6%) in order to insure proper flow of surface drainage toward inlets. Steeper grades may be permitted on alleys where required by topographical and/or natural features, as approved by the Director and the City Fire Marshall.
2.3.4 **Design Speed**

Unless otherwise directed by the Traffic Engineer, the design speed of public alleys shall be ten miles-per-hour (10 mph).

2.3.5 **Horizontal Curves**

Horizontal curves for public alleys shall conform to the current edition of AASHTO’s “Policy on Geometric Design of Highway and Streets”.

2.3.6 **Vertical Curves**

A vertical curve for public alleys shall be required when the algebraic difference in grade is two percent (2.0 %) or greater.

Vertical curves for public alleys shall conform to the current edition of AASHTO’s “Policy on Geometric Design of Highway and Streets”.

2.3.7 **K Factors**

K factors for public alleys shall conform to the current edition of AASHTO’s “Policy on Geometric Design of Highway and Streets”.

2.4 **Street Lighting**

A proposed street lighting and conduit design shall be included in the Plans. The Traffic Engineer shall have the final approval of the proposed street light design.

Proposed street lighting shall conform to the *Street Lighting Design Standards* found [here](#).

The Developer and/or Design Engineer shall be responsible for all coordination with ONCOR for the relocation of existing street lighting as necessary for construction of the improvements.

The Design Engineer shall coordinate with ONCOR for the installation of new street lighting.

No costs related to relocation of existing street lighting or installation of new street lighting shall be the responsibility of the City.

The foundation of new or relocated street lighting shall be located no less than three-feet (3’) clear of the back-of-curb.
3 Traffic Signal Requirements

3.1 Plans
The Traffic Engineer shall direct the Design Engineer as to the extent of traffic signal work to be included in the Plans. All traffic signal designs shall follow the requirements of Section 1.2.17, and the Traffic and Transportation Department standard details.

All proposed traffic signal work shall be fully compliant with ADA standards and include Accessible Pedestrian Signals (APS).

3.2 Developer Proposed Signals
Should the Developer propose to signalize a currently unsignalized intersection, a Traffic Impact Analysis shall be submitted by the Developer to the Traffic Engineer for consideration. Unless otherwise directed, all traffic counts and parameters used in the Traffic Impact Analysis shall be established by the Traffic and Transportation Department. Submittal of a Traffic Impact Analysis by the Developer shall in no way imply the need for a signal, and final determination as to the necessity of a signal shall be made by the Traffic Engineer.

3.3 Costs
The cost for installation and materials of all infrastructure related to traffic signalization will be paid by the Developer or the Capital Improvement Program Department if a City funded project.

The Design Engineer shall coordinate with ONCOR regarding the electrical service requirements for the proposed traffic signal and City Inspections Department for applicable electrical permits. The Developer shall be responsible for all costs associated with the installation of the new traffic signal electrical service.

3.4 Conduit
A traffic signal conduit layout for each signalized intersection shall be included in the Plans. The layout shall follow the requirements of the relevant Traffic and Transportation Department details.

Standard conduit layout shall include a four-inch (4") conduit boxed around the intersection (both intersections shall be boxed for a diamond interchange) with a Type D ground box at each corner, a three-inch (3") conduit to each mast arm pole, a two-inch (2") conduit to the pedestal, two (2) four-inch (4") and two (2) two-inch (2") conduits to the signal cabinet unless otherwise directed by the Traffic Engineer.
For all signalized corridors, a two-inch (2") schedule 40 polyvinyl chloride (PVC) traffic signal conduit for interconnect shall be installed between intersections. The Traffic Engineer shall have the final approval of the proposed conduit layout.

3.5 Communications

Communications between the Traffic Operations Center and the proposed traffic signal shall be required. Design and methods of communications shall be coordinated with the Traffic and Transportation Department.

3.6 Color

All traffic signal poles and pedestal assemblies shall be powder coated dark bronze in color, and all signal heads shall be black per the relevant detail.

3.7 Illuminated Street Name Signs

Illuminated street name signs shall be installed on all signal mast arms. The Design Engineer shall coordinate the sign design with Traffic and Transportation Department.

3.8 Temporary Traffic Signals

Temporary traffic signal may be required by the Traffic Engineer to maintain adequate traffic flow during construction. When required, the Contractor shall be responsible for furnishing, installing, and maintaining temporary traffic signals and all associated equipment.
4 Construction Phasing/Traffic Control

4.1 Construction Phasing Plan

A Construction Phasing Plan shall be included for all projects impacting the City right-of-way. The plan shall detail the anticipated progression of work and how traffic (including pedestrian traffic) is to be safely maintained during construction.

The parking of workers/staging of equipment and/or the loading/unloading/storage of materials shall not occur within the City right-of-way. The phasing plan shall therefore demonstrate how the Project will be constructed without encroaching into the City right-of-way.

4.2 Temporary Traffic Control

Prior to performing any work which may obstruct or impede the normal flow of traffic (including pedestrian traffic) within the City right-of-way, a Traffic Control Plan shall be provided by the Contractor in accordance with the current edition of the “Texas Manual on Uniform Traffic Control Devices” (TMUTCD).

Subsequent to City approval of the Temporary Traffic Control Plan, the Contractor shall notify the Traffic and Transportation Department at least three (3) business days prior to beginning work within the City right-of-way, or if portable changeable message signs are required, seven (7) calendar days.

All costs associated with temporary traffic control shall be paid for by the Contractor.

4.3 Permanent Traffic Control

The Traffic and Transportation Department shall determine all permanent traffic control necessary in the City right-of-way.

The Traffic and Transportation Department shall install all signs, signpoles, pavement markings, and traffic markers (traffic buttons) related to permanent traffic control within the City right-of-way.

Stop signs for traffic control of driveway connections to public streets shall be furnished and installed at the Developer’s expense. Stop sign(s) shall be thirty-inches (30”) in size, fabricated with “High Intensity Prismatic” (HIP) grade reflective sheeting or better. The sign placement and installation shall conform to the TMUTCD. Other traffic regulatory and/or warning and/or guide signs and pavement markings on private drives as required by the City shall be furnished and installed at the Developer’s expense and shall conform to the TMUTCD.
The Contractor shall furnish to the Traffic and Transportation Department raised pavement markers (traffic buttons) required for the Project in a type and quantity as specified by the Traffic Engineer.

In accordance with the approved Plans, additional safety measures (such as guard rail, bollards, etc.) as required by the Traffic Engineer shall be installed by the Contractor and paid for by the Developer or the Capital Improvement Program Department if a City funded project.

4.4 Work in TxDOT Right-of-Way
The Contractor shall not encroach upon, nor perform any work within Texas Department of Transportation (TxDOT) right-of-way without first securing necessary permits from TxDOT. Any construction impacting the TxDOT right-of-way shall be approved by TxDOT prior to construction.

4.5 DART Coordination
Any construction potentially disrupting bus and/or rail operations shall be coordinated with DART.
City of Irving
Traffic and Transportation Department Plan Review Checklist
Updated: 3/10/2022

Project Name: ____________________________________________________________

Contact Information
Name: ___________________________ Phone: ___________________________
Company: _________________________ Email: ___________________________

Engineer of Record
Name: ___________________________ Phone: ___________________________
Company: _________________________ Email: ___________________________
Signature: _________________________

Instructions: Submit the completed Plan Review Checklist along with the Civil Plans to the City of Irving Traffic Engineer for review.

*This checklist is not all-inclusive of the City of Irving Standards and Ordinances.*
A. Plans – General Requirements

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12. Paving Plan

i. Plan View
   a. Roadways (street name, width measured from the face-of-curb, pavement cross section and material type, labeled public/private)     
   b. Alleys (width, material type, invert size, labeled public/private)     
   c. Sidewalks (width)     
   d. Barrier free ramps (proposed type)     
   e. DART bus stop location (bus stop pad)     
   f. Driveways (width, labeled if fire lane)     
   g. Curb radii (measured from the face-of-curb)     
   h. Centerline (points of inflection, curve data, survey information) (Placed in center of ROW)     

Revised: 3/10/2022
i. Right-of-way (type, width, Dallas County Volume and Page Number and/or DRDCT)  
   Yes          No          N/A

j. Easements (type, width, Dallas County Volume and Page Number and/or DRDCT))  
   Yes          No          N/A

k. Dedications (type, width, dedication method)  
   Yes          No          N/A

l. Water utilities (fire hydrants, water valves, water manholes)  
   Yes          No          N/A

m. Wastewater/sanitary sewer utilities (manholes)  
   Yes          No          N/A

n. Drainage utilities (manholes, inlets, channels, flumes)  
   Yes          No          N/A

o. Franchise utilities (boxes, poles, other ground-placed infrastructure)  
   Yes          No          N/A

p. Existing elements within right-of-way (street lights, mail boxes, monument signs, etc.)  
   Yes          No          N/A

q. Street lights (proposed and/or to be relocated)  
   Yes          No          N/A

r. Retaining walls (height and location, labeled public/private)  
   Yes          No          N/A

s. Fences/screening walls (height and location)  
   Yes          No          N/A

t. Landscaping (trees, sprinkler system, planters, ground cover)  
   Yes          No          N/A

ii. Profile View
   a. Roadway grades (at top of curb)  
      Yes          No          N/A

   b. Top of ground at right-of-way (left and right)  
      Yes          No          N/A

   c. Point of inflection (PI) data  
      Yes          No          N/A

   d. Vertical curve data (length, grades, K factor)  
      Yes          No          N/A

   e. Drainage utilities (inlet location stationed from center of inlet)  
      Yes          No          N/A

iii. Design Information
   a. Centerline stationing (dimensions to right-of-way and face-of-curb)  
      Yes          No          N/A

   b. Top of curb elevation at point of curvature (PC) and point of tangency (PT) of roadways  
      Yes          No          N/A

   c. Top of curb elevation at point of curvature (PC) and point of tangency (PT) of driveways and alleys  
      Yes          No          N/A

Revised: 2/28/2022
Traffic and Transportation Plan Review Checklist

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>d. Top of curb elevation at geometric high points and low points</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Top of curb elevation at center of storm inlets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Turn lanes (storage length, taper, radii)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Crosswalk alignment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Monolithic median noses (width)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Street lights (proposed and/or to be relocated)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>j. Retaining walls (height and location)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>k. Fences/screening walls (height and location)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>l. Landscaping impacting sight visibility</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

B. Roadway Design Requirements

I. Street Design
   1. Centerline
      a. Placed in the center of right-of-way |     |    |     |
      b. The centerline of curves tangent to the centerline of the street at each end of the curve |     |    |     |
   2. Pavement widths conform to the Master Thoroughfare Plan |     |    |     |
   3. Grades
      a. Minimum roadway longitudinal grade of one percent (1%) |     |    |     |
      b. Maximum roadway grade longitudinal of six percent (6%) |     |    |     |
      c. Crosswalk grades comply with ADA standards |     |    |     |
   4. Intersections
      a. All intersections are designed per the requirements of Section 2.1.4 |     |    |     |
      b. Valley gutters are not carried across any intersection |     |    |     |
      c. Topographical representations of each proposed intersection at one-tenth-foot (0.1') contour interval is included in the Plans |     |    |     |

Revised: 2/28/2022
Traffic and Transportation Plan Review Checklist

5. Pavement cross section geometry per requirements of Section 2.1.5
<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
</table>

6. Pavement cross sections at 50-foot intervals included
<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
</table>

7. Design Speed confirmed with Traffic Engineer
<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
</table>

8. Horizontal Curves
   a. All proposed horizontal curves conform to the current edition of AASHTO’s “Policy on Geometric Design of Highway and Streets”
      | Yes | No | N/A |
      |-----|----|-----|

9. Vertical Curves
   a. Vertical curves used at all locations where the algebraic difference in grade is one percent (1%) or greater
      | Yes | No | N/A |
      |-----|----|-----|
   b. All proposed vertical curves conform to the current edition of AASHTO’s “Policy on Geometric Design of Highway and Streets”
      | Yes | No | N/A |
      |-----|----|-----|
   c. All K Factors conform to the current edition of AASHTO’s “Policy on Geometric Design of Highway and Streets”
      | Yes | No | N/A |
      |-----|----|-----|

10. Curbs
    a. All curbs conform to the City’s Standard Details
       | Yes | No | N/A |
       |-----|----|-----|
    b. Are mountable curbs proposed
       | Yes | No | N/A |
       |-----|----|-----|
    c. Are utility manholes or valves located within the proposed or existing curb line
       | Yes | No | N/A |
       |-----|----|-----|
    d. All curb radii are clearly marked and conform to the Access Management Manual
       | Yes | No | N/A |
       |-----|----|-----|

11. Driveways
    a. All driveway locations conform to the Access Management Manual
       | Yes | No | N/A |
       |-----|----|-----|
    b. All driveway centerlines are perpendicular to the centerline of the roadway
       | Yes | No | N/A |
       |-----|----|-----|
    c. All proposed driveway locations are located away from the geometric low point of any vertical curve
       | Yes | No | N/A |
       |-----|----|-----|
    d. All existing driveway profiles are shown in the plans
       | Yes | No | N/A |
       |-----|----|-----|
    e. Water meters and/or valves are placed outside of proposed driveways
       | Yes | No | N/A |
       |-----|----|-----|

Revised: 2/28/2022
<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>12. Inlets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Low point inlets are located at the geometric low point of any vertical curve</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Inlets are located per Section 2.1.14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Grate inlets and/or slotted drains proposed in the City’s right-of-way</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Use of Parkway</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Any proposed fence, wall, screen, sign, structure, landscaping (rock greater than four-inches (4”) in height), or foliage of hedges, trees, bushes, or shrubs are located outside of the City’s Parkway</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Medians</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. All proposed median openings conform to the requirements of the <em>Access Management Manual</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Brick pavers or sodded natural ground is shown in all medians per Section 2.1.17 and the relevant City <em>Standard Detail</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. No trees or shrubs are located within medians 8 ft. wide or less</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Medians wider than 6-foot (6’) and in excess of a 4:1 slope conform to the requirements of Section 2.1.17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. All median noses are variable height monolithic concrete in accordance with the relevant Standard Detail</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Turn Lanes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. All proposed turn lanes conform to the requirements of the <em>Access Management Manual</em> and/or the <em>Master Thoroughfare Plan</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. All proposed turn lane designs are on a separate plan sheet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. All existing street lights in conflict have been relocated per the City’s <em>Street Lighting Design Standards</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Sight Visibility</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. All intersections are free of visual obstructions based on the visibility triangle criteria in the <em>Access Management Manual</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Sight line exhibits, if required, have been provided to the Traffic Engineer</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Revised: 2/28/2022
17. Fences / Screening Walls
   a. All proposed fences/screening walls are placed in accordance with the City’s Fence Ordinance
      Yes  No  N/A
   b. All proposed fences/screening walls are located as to not cause a visual obstruction
      Yes  No  N/A
   c. All proposed fences/screening walls are located outside of any existing or proposed sight easement
      Yes  No  N/A
   d. No portion of any proposed screening wall is located closer than 1-foot (1’) away from the City’s right-of-way
      Yes  No  N/A

18. Retaining Walls
   a. All retaining walls not associated with a Capital Improvement Project are privately maintained
      Yes  No  N/A
   b. All portions of any private retaining wall are located a minimum of 1 foot (1’) away from the City’s right-of-way
      Yes  No  N/A
   c. Privately maintained retaining walls are not used to support any public infrastructure
      Yes  No  N/A

19. Private Streets
   a. All private streets are design and shall be constructed to the same Standards as public streets
      Yes  No  N/A
   b. All gates across private streets conform to the requirements of the Access Management Manual
      Yes  No  N/A

II. Pedestrian Facilities

1. Sidewalks
   a. Concrete sidewalks shall be installed along all proposed streets, along all public right-of-way adjacent to a proposed Development, and along all substantial property improvements exceeding 51% of the Dallas County Appraisal District’s most current year’s property value
      Yes  No  N/A
   b. Proposed sidewalk width is six-foot (6’), adjacent to the back of curb
      Yes  No  N/A
   c. Proposed sidewalk width is 5-foot (5’), 1-foot (1’) from the right-of-way
      Yes  No  N/A
   d. The Design Engineer has verified that all pedestrian facilities meet the current TDLR / ADA requirements
      Yes  No  N/A
### Traffic and Transportation Plan Review Checklist

<table>
<thead>
<tr>
<th>e. The top of a curb inlet is not considered as sidewalk when measuring the pedestrian pathway. Any sidewalk directly adjoining curb inlets are not be dowelled together, per the relevant detail</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Obstructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. The proposed sidewalk gently meanders around proposed and existing fire hydrants, street light poles, traffic signal poles, traffic signs poles, trees, and other obstructions</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>b. Existing or proposed manholes, water meters or water valves are not located within the proposed sidewalk</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>c. Steps, street furniture, and/or other barriers are not proposed within the City’s right-of-way</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Barrier Free Ramps</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Barrier free ramps are installed at all pedestrian facilities crossing a public or private street</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>b. All proposed barrier free ramps adhere to current City and/or TxDOT standard details</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. Crosswalks</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Crosswalks are illustrated at all signalized intersections and across all public streets intersecting a Thoroughfare as defined by the City’s Master Thoroughfare Plan</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>b. Crosswalks are ten-feet (10’) wide (1’ border + 8’ walk + 1’ border)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>c. At T-intersections, crosswalks are eight-feet (8’) wide (1’ border + 6’ walk + 1’ border)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>d. The edge of the crosswalk is located two-feet (2’) behind the projected face-of-curb</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

### III. Alleys

<table>
<thead>
<tr>
<th>1. All proposed alleys are private</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. All proposed alley locations conform to the driveway spacing requirements of the Access Management Manual</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. All alley intersections with streets are perpendicular within a 5° tolerance at the intersection of the right-of-way and/or easement lines and are not proposed to connect to Arterial or Major Collector roadways</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Revised: 2/28/2022
4. Public alleys are a minimum of sixteen-feet (16’) in width, a twenty-foot (20’) access easement width, with a three-inch (3”) invert 

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
</table>

5. Public alley grades are a minimum of one percent (1.0 %) and a maximum of six percent (6.0 %) to insure proper flow of surface drainage toward inlets

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
</table>

6. Horizontal curves conform to the current edition of AASHTO’s “Policy on Geometric Design of Highway and Streets”

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
</table>

7. A vertical curve has been provided when the algebraic difference in grade is two percent (2.0 %) or greater and conform to the current edition of AASHTO’s “Policy on Geometric Design of Highway and Streets”

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
</table>

8. K factors conform to the current edition of AASHTO’s “Policy on Geometric Design of Highway and Streets”

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
</table>

### IV. Street Lighting

1. A street lighting and conduit plan has been included in the plan set

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
</table>

2. The proposed street lighting plan conforms to the City’s Street Lighting Design Standards

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
</table>

3. The Developer and/or Design Engineer shall coordinate with ONCOR for the relocation of existing street lighting as necessary for construction of the improvements

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
</table>

4. The Design Engineer shall coordinate with ONCOR for the installation of new street lighting

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
</table>

5. No costs related to relocation of existing street lighting or installation of new street lighting shall be the responsibility of the City

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
</table>

6. The foundation of new or relocated street lighting is located no less than three-feet (3’) clear of the back-of-curb

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
</table>