



Transportation Engineering Plan (TEP) Review Submittal Requirements

Authority	Revised Municipal Code Article 49
Purpose	<p>A Transportation Engineering Plan (TEP) is a set of construction plans prepared by the developer/owner which documents right-of-way improvements required of a proposed project. This document is used by City and County of Denver (CCD) inspectors to ensure that all required right-of-way improvements are constructed per CCD standards. If a TEP is required by Development Engineering Services (DES) for a project, it must be approved before a Building Permit will be released or a Site Plan will be approved by Development Engineering Services.</p> <p>This TEP Review Submittal Requirements document sets forth the minimum standards necessary for TEP submittal and approval by DES. Authority for these standards is found in Article 49 of the Revised Municipal Code (RMC). Disputes regarding the requirements shall be resolved by administrative hearing pursuant to the RMC 56-106. The TEP Review Submittal Requirements document may be found at the following link:</p> <p>https://www.denvergov.org/content/denvergov/en/denver-development-services/help-me-find-transportation-engineering.html</p>
Document Date	March 12, 2020
Permit Types	No permits are required for a TEP approval unless a CDOT access permit is required or a Tier 2 or Tier 3 encroachment is proposed in the TEP. (Right-of-way Permit(s) are required prior to construction. See below for additional information.)
Customer Interface	<p>Development Services provides the customer interface for Development Engineering Services.</p> <p>Development Services 201 W. Colfax Ave. Dept 203, Denver, CO 80202 720-865-2982</p> <p>Email: DevelopmentServices@denvergov.org Website: http://denvergov.org/developmentservices</p>
TEP Requirement Criteria	<p>Development Engineering Services requires a TEP submittal and approval for any project which one or more of the following criteria apply, or at the discretion of the DES Engineer:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Change of use that creates additional impact on the right-of-way. <input type="checkbox"/> Site access modification. <input type="checkbox"/> Change in location of curb and gutter, sidewalk, driveways, or curb ramps. <input type="checkbox"/> Construction of 100 continuous lineal feet or more of curb and gutter, sidewalk, or alley, <input type="checkbox"/> Construction on a state highway or an arterial street as defined by DES. <input type="checkbox"/> Construction of new street or pedestrian lighting in the ROW. <input type="checkbox"/> Construction of medians or acceleration/deceleration lanes, or change in street lane widths. <input type="checkbox"/> Construction of new intersection control (stop signs, signals, roundabouts, etc). <input type="checkbox"/> Project impacts either pavement markings or traffic signs within the ROW, excluding perpendicular utility service connections. <input type="checkbox"/> Project traffic study indicates necessity for significant improvements in ROW other than noted above.

Submittal and Approval Process

Submittal Process

Electronic submittals

TEP documents are to be submitted electronically to Development Services via E-Permits. Please contact Development Services or visit:

<https://www.denvergov.org/content/denvergov/en/denver-development-services/help-me-find-epermits.html>.

Hardcopy submittals

Portions of the submittal that are not submitted electronically like the original signed TEP application or CDOT access permit application shall be made to Development Services at 201 W. Colfax Ave. Dept 203, Denver, CO 80202.

Review time

Allow 3 weeks for initial review of TEP submittals. Subsequent reviews may require less time. *Please do not call or email the department unless adequate review time has been given.*

TEP Triage Review

The initial submittal of the TEP will not be accepted for review or approval until the submittal is complete and includes all applicable items listed in the Transportation Triage Checklist found below. The initial submittal of the TEP must be submitted to Development Services electronically via the EFT (follow normal electronic submittal process) and an email must be sent to your DES Transportation review engineer with a copy to eric.osmundsen@denvergov.org. Development Engineering Services will perform a Triage review and accept or reject the initial submittal within 2 business days of receipt of the email. The goal of the triage review is to reduce the number of review submittals required for approval of the TEP by ensuring that sufficient information is included on the first submittal of the TEP.

Transportation Triage Checklist

1. Site Plan sheet of existing and proposed improvements and limits of existing and proposed ROW
2. Profile (if constructing at least 100 continuous feet of sidewalk, curb and gutter, or alley or when required in the concept comments)
3. Cross Sections (if constructing at least 100 continuous feet of sidewalk, curb and gutter, or alley or when required in the concept comments)
4. Signage and Striping plan (info may be included on the site plan sheet on small projects)
5. Intersection Design Plan (if required in the concept comments)
6. Street Lighting Plan (info may be included on the site plan sheet on small projects)
7. Concrete Jointing Plan (if concrete pavement is being constructed)
8. Traffic Signal Design (if a traffic signal is proposed or if an existing signal needs to be modified)
9. Details for each proposed curb cut and curb ramp or any other non-standard ROW improvement.

TEP Application

See Approval Process below for information regarding the application.

Review fee

THE INITIAL TEP REVIEW FEE OF \$500.00 MUST BE PAID BEFORE THE FIRST SUBMITTAL OF ANY HARD COPY SUBMITTALS ARE REVIEWED AND BEFORE THE SECOND SUBMITTAL OF ANY ELECTRONIC SUBMITTALS ARE REVIEWED. *See Approval Process below for information regarding final fee payment.*

Checks for the TEP review fee are to be made payable to "Manager of Finance".

For fee amount information, refer to the schedule of fees at the following link:

<https://www.denvergov.org/content/denvergov/en/denver-development-services/help-me-find-fees.html>

Submittal and Approval Process
(Continued)

Approval Process

The following administrative items are required prior to TEP approval:

(All questions regarding TEP approval should be directed to Development Services at 720-865-2982 or developmentsservices@denvergov.org.)

Technical Completion

1. Before the TEP can be approved, the TEP must be found to be technically complete. Development Services will notify the applicant when the plans are technically complete. At that point, the applicant will need to complete the administrative portion of the approval process before Development Engineering Services will Sign and approve the TEP.

Administrative Approval

2. Submit final TEP plans for approval. There are three options for the final submittal. All options must have a Colorado Registered Professional Engineer (P.E.) seal and signature on each page:
 - Paper Submittal - Submit two original sealed and signed copies of the TEP. Additional sets may be submitted if the owner or engineer of record would like additional approved sets.
 - Electronic Submittal with Electronic Signature – Submit a PDF that includes the electronic seal and signature. The electronic signature should meet all state requirements for P.E.'s electronic signatures.
 - Scan of the Record Set – Submit a PDF copy of the sealed and signed final reproducible, the final reproduction, or the final electronic record document. Scanned submittals that are not legible or appear to be distorted or out of scale will not be accepted.
3. Submit the final cost estimate (if not included in the TEP), P.E. signed and sealed (original, PDF scan of original, or PDF with electronic signature) by the engineer of record.
4. Submit an executed "TEP Application Form" The application may be found in the TEP submittal requirements section of the following web page:
<https://www.denvergov.org/content/denvergov/en/denver-development-services/help-me-find-/transportation-engineering.html>
 - Submit the application only after the cost estimate has been approved.
 - The application must be an original signed document including the DES project number, the approved cost estimate amount, and the project address.
 - The application must be signed by the property owner and have the proper notary or corporate seal.
5. Pay Final Review Fee (if applicable)

TEP Plan Requirements

Transportation Engineering Plan documents shall include the following:

(All sheets must be signed and stamped by a Professional Engineer registered with the State of Colorado.)
(Provide keymaps on all applicable plan sheets if multiple sheets are required to show the entire site.)

1. Cover Sheet

- Include "TRANSPORTATION ENGINEERING PLAN" centered on top of the cover
- Vicinity map
- General Notes and applicable Site Specific Notes (see below)
- Project name
- Project location (legal description and address)
- Sheet index
- Plan set date
- Approval (title) block with the DES project number.

<p>City and County of Denver Department of Transportation & Infrastructure (DOTI) Development Engineering Services</p>			
<p>Checked for General Compliance with applicable Denver Criteria, Rules, Regulations, and Standards</p>			
<p>APPROVED (If validly signed)</p>			
<p>This approval becomes void if construction is not started within one (1) year of the approval date.</p>			
<p>Approved by _____</p>		<p>Date _____</p>	
<p>(Note: Signature in Print)</p>		<p>Review Engineer _____</p>	
<p>APPROVED AS TO FORM. ENGINEERING CALCULATIONS, DRAWINGS AND DESIGN ADEQUACY ARE ACCEPTED BASED UPON THE PROJECT ENGINEER'S ATTACHED SEAL OF REGISTRATION.</p>			
<p>THIS APPROVAL IS FOR RIGHT OF WAY IMPROVEMENTS</p>			
<p>CALL THE UTILITY NOTIFICATION CENTER OF COLORADO AT 811 THREE (3) BUSINESS DAYS IN ADVANCE BEFORE DIGGING, GRADING OR EXCAVATION FOR MARKING OF MEMBER'S UNDERGROUND UTILITES</p>			
<p>(Project Engineer's Professional Engineer Seal, Signature and Date)</p>			
<p>DES PROJECT NO.</p>		<p>(i.e. 2020-PM-0000123)</p>	
<p>PROJECT NAME:</p>			
DESIGNED BY	DATE	DATE ISSUED	DRAWING NO.
DRAWN BY	DATE		
CHECKED BY	DATE	SHEET ___ OF ___ SHEETS	

Approval / Title Block for the Cover Sheet

TEP Plan Requirements

(continued)

City and County of Denver Department of Transportation & Infrastructure (DOTI) Development Engineering Services			
DES PROJECT NO.		(i.e. 2020-PM-0000123)	
PROJECT NAME:			
DESIGNED BY	DATE	DATE ISSUED	DRAWING NO.
DRAWN BY	DATE		
CHECKED BY	DATE	SHEET ___ OF ___ SHEETS	

Title Block for every sheet except the first sheet

2. Roadway Plan and Profile Sheet(s)

(Deleted text regarding profiles, moved it below to the profile section)

General

- Numerical and bar scale
- North arrow
- Legend
- Note the existence of any special districts, landmark designations, or park designations.

Plan view

Show and label existing and proposed:

- Curb and gutter
- Control Line
- Benchmark
- Basis of Bearing
- Sight Triangles (Three types including pedestrian, corner, and roadway)
- Street lights
- Pedestrian lights (may need a special permit)
- Pedestrian and vehicular signals
- Landscaping in the ROW (may be placed on a separate sheet in the TEP)
- Pavement markings and traffic signage
- Parking meters
- Nearby driveways and alleys
- Street names
- RTD bus stop, with any amenities including bench/shelter, signage, bus pad and bench pad
- Surface utility features such as manhole lids, storm drainage inlets, traffic control boxes, fire hydrants

Show, label and dimension existing and proposed:

- Right-of-way width
- Property lines (provide length and bearing)
- Easements (include type and width)
- Sidewalk width and cross slope*
- Sidewalk scoring (if not standard tooled joint spacing)
- Sidewalk and tree lawn cross slope
- Curb ramps*
- Flowline to flowline width
- Flowline grades (unless shown on profile)
- Right-of-way to flowline distance
- Driveway curb cuts**
- Alley cuts**
- Private curb and gutter transition at property line
- Building setback from flowline

**TEP Plan
Requirements**
(continued)

- Distance between drive cuts (edge of flare to edge of flare)
- Distance between drive cuts and the flowline of intersecting streets
- Distance between street lights and pedestrian lights
- Distance between parking meters
- Distance between street trees
- Slope of the driveway approaching the curb cut, including slopes into garages
**
- Proposed on-street parking dimensions
- Encroachments of anything into the ROW covered by an existing or proposed revocable permit.

*Include spot elevations and slope labels to show that all pedestrian ramps and sidewalks that are proposed (or existing to remain) meet City and County of Denver and Americans with Disabilities Act standards.

**Include spot elevations and slope labels to show that all driveway curb cuts or alley cuts that are proposed (or existing to remain) meet City and County of Denver and Americans with Disabilities Act standards.

Profile View

(Required if constructing at least 100 continuous lineal feet of alley or curb, gutter and/or sidewalk; OR if requested)

(If street profiles are required, these may be combined with the plan view sheet, or the plan and profile may be on separate sheets.)

- Proposed grade at centerline and/or flowline
- Existing grade (dashed) at centerline and/or flowline
- Right-of-way lines
- Street names
- Grades, clearly labeled
- Match lines and consecutive sheet number
- Roadway stationing shown in plan view
- Station and elevation of all curb returns; horizontal P.C.'s, P.T.'s, P.C.C's, etc.
- Centerline station of all driveways and alleys
- Centerline station of all intersecting roadways
- Station and elevation of all vertical grade breaks
- Vertical curves, VPI, VPC, VPT, L, K, high or low point
- Proposed utilities
- Existing utilities (Shaded back)
- Curb return profiles if required.

3. Cross Sections *(Required if constructing at least 100 continuous lineal feet of alley, curb, gutter and/or sidewalk; OR if requested)*

- Required every 25 feet. For new roadway, cross sections may only be required at tie in areas (at the discretion of the DES Engineer)
- Show tie in to property line
- Include sidewalk, curb and gutter, and roadway
- Cross slopes labeled
- Label elevations at the flowline, top of curb, crown, front of sidewalk, back of sidewalk, ROW line, and grade breaks.
- Scale

4. Striping and Signage Plan

- Existing and proposed signage with dimensions from PCR
- Existing and proposed pavement markings with dimensions from the flowline.
- Lane flow arrows
- Lane widths
- Flowline to flowline dimension
- Roadway crown
- Concrete Joints
- Station and Offset information for all tapers

5. Intersection Design Plan *(If constructing new intersection or if required by DES)*

- Signal Design

TEP Plan Requirements
(continued)

- Roundabout Design
- Median Design
- Intersection grading
- Detailed horizontal Design
- Proposed signing and striping

6. Detail Sheet

- Do not include standard CCD details in the plans. Reference these by number on the appropriate plan sheet.
- Provide any special, non-standard, or modified CCD details
- Current CCD Transportation Standards and Details may be found here: <https://www.denvergov.org/content/denvergov/en/denver-development-services/help-me-find-/transportation-engineering.html>

7. Lighting Plan *(If more than two street lights are proposed)*

- Show all existing and proposed street lights
- Note the type of street light and lamp on plan
- Provide dimensions between each street light
- Provide enough detail to locate the street light in the field.
- Notes should be added to indicate that the proposed lights will be installed by Xcel energy and the contractor will need to coordinate installation.

8. Concrete Jointing Plan *(If concrete pavement is being constructed.)*
(Jointing Plan may be a stand-alone sheet, or instead may be included on the Signage/Striping Plan.)

- Show, label and dimension all concrete joints
- Show pavement markings on the Jointing Plan

9. Engineer's Cost Estimate (may be submitted separately)

- Provide a cost estimate of all required Public ROW improvements in the TEP.
- The cost estimate must include a breakdown of the work items with the quantity, units or measure, unit price, and the line item subtotal.
- The cost estimate must be signed and stamped by a Professional Engineer.
- The cost estimate may be included in the TEP plan set or submitted separately on company letterhead.
- The cost estimate must be approved by DES prior to final TEP plan approval. Once the cost estimate is approved by DES, that number will be entered on the application to construct a Public Improvement.

General Notes (Include these notes in all TEP plan sets)

1. DES approval does not constitute a notice to proceed. The developer is responsible for obtaining appropriate construction permits.
2. Improvements made within the public ROW shall be performed by a licensed and bonded ROW contractor and require inspection by the City and County prior to issuance of a Temporary Certificate of Occupancy (TCO) or Certificate of Occupancy (CO).
3. All work shall conform to current City and County of Denver Specifications. If the Right-of-Way Construction Inspector finds a problem on the approved plans during construction that conflict with a CCD standard, the inspector may halt construction until the issue is resolved.
4. Construction shall commence within one year of TEP approval. After one year, TEP approval expires and resubmittal/approval of TEP is required. Construction shall be completed within two years of DES approval or an extension is required.
5. Contractor is responsible for obtaining all project permits associated with construction. Improvements made within the public ROW totaling more than \$20,000 require a performance bond prior to beginning any work in the ROW. Contact Right-of-Way Construction Inspection at (303 446-3469) two weeks before any construction permit needs.

TEP Plan Requirements
(continued)

**TEP Plan
Requirements
(continued)**

6. Permittee shall notify the Right-of-Way Construction Inspector: 1) two working days before commencing work in ROW; 2) when suspending operations in ROW for 5 or more working days; 3) two working days before resuming suspended ROW work; 4) upon completion of ROW work.
7. Contractor shall maintain at least one printed copy of the approved plans, specifications and standards on the job site at all times.
8. Contractor is responsible for being aware of, notifying, coordinating and scheduling all inspections required for final approvals and project acceptance.
9. Prior to final acceptance, all disturbed portions of roadway ROW shall be cleaned up and restored to their original condition, subject to City and County approval.
10. All work, including correction work, is subject to notification and inspection requirements.
11. All work shall be properly backfilled prior to the end of workday. No open holes are allowed overnight. All work is to be in accordance with permit requirements and applicable standards.
12. No work shall be permitted at night or on Saturdays, Sundays, or Holidays without prior authorization or unless otherwise specified in the permit. The City and County may restrict work in ROW during adverse weather conditions or during periods of high traffic volume.
13. Coordinate all Street Occupancy or Street Cut permits with Right-of-Way Construction Inspection 2 weeks prior to commencement of work.
14. In the event that an emergency repair to existing facilities is necessary, the Right-of-Way Construction Inspector shall immediately be notified of possible traffic hazards. Emergency procedures shall be coordinated beforehand, where possible. No work will be allowed until notification is received. Emergency telephone notification must be followed up with a letter as soon as possible.
15. Contractor is responsible for providing and maintaining adequate traffic control throughout the project, including proper traffic control devices and/or personnel as required. A Traffic Control Plan (TCP) is subject to CCD and/or CDOT approval prior to commencing work on roadway ROW. A copy of approved TCPs must be available on site during work. Traffic control is to be in accordance with the Manual on Uniform Traffic Control Devices (MUTCD), Section VI.
16. Closures of Arterial roads or intersections shall require site specific traffic control plans.
17. All traffic control plans and schedules must be approved by Right-of-Way Construction Inspection prior to Street Occupancy or Street Cut Permit submittal.
18. The developer is responsible for any modifications to existing pavement markings necessitated by this development. Proposed pavement marking must be per Department of Transportation & Infrastructure (DOTI) Transportation and Mobility standards. All markings must be installed according to manufacturer's specifications.
19. Owner must acquire a MGPEC compliant Quality Control laboratory prior to starting construction and must perform all Quality Control testing within the right-of-way following the MGPEC frequency for testing. The CCD will only provide quality assurance.
20. A monument record must be filed with the City and County Surveyor's Office, through Department of Transportation & Infrastructure (DOTI) Plans Review Services (PRS), on all crosses on curb heads, benchmarks, range points and section corners so they can be replaced after construction. The monument record must be filed with the City and County Surveyor's Office before the plan and profiles can be approved. This must be done by a Professional Licensed Land Surveyor. These monuments must be replaced by the developer's surveyor before new construction can be accepted by CCD.
21. All range points, ties, benchmarks, or other CCD survey control points, which may be encountered during construction, must be preserved.
22. The Contractor shall contact all appropriate utility companies and Right-of-Way Construction Inspection three days prior to the beginning of any construction. Contractor shall be responsible for locating any existing utility (including depths) which may conflict with the proposed construction. The Contractor shall protect all existing utilities from damage. Damaged utilities shall be repaired by and at the expense of the Contractor.
23. Relocation of utilities such as power poles and fire hydrants that lie within the public ROW will be the cost of the developer and shall be coordinated with the appropriate utility or agency.
24. Proposed light fixtures installed on private property adjacent to the public ROW shall be oriented in such a manner or limited in lumen output to prevent glare problems and shall not exceed National I.E.S. lighting standards for disability glare.

**TEP Plan
Requirements**
(continued)

25. The developer shall pay Xcel Energy for the construction and/or relocation of streetlights within the public ROW. The streetlights shall be constructed and/or relocated to the current City and County standards and coordinated through Xcel Energy.
26. When an existing asphalt street is cut, the street must be restored to a condition equal to or better than its original condition. The existing street condition shall be documented before any cuts are made. Patching shall be done in conformance with the project standards. The finished patch shall blend smoothly into the existing surface. All large patches shall be paved with an asphalt lay-down machine.
27. Patch asphalt paving as necessary to join new gutters with the existing pavement. Removal and replacement of asphalt shall be per the latest *Standards and Details for Engineering Division*.
28. Construction of any portion of the roadway facility, including the pavement structure, subsurface support, drainage, landscaping elements, and all appurtenant features shall comply with the provisions of the City and County standard specifications and standard plans.
29. Where consistent with safety and space considerations, excavated material is to be placed on the uphill side of trenches.
30. All concrete work requires full panel replacement.
31. Material removed from any portion of the roadway prism must be replaced in like kind with equal or better compaction. No segregation of material will be permitted.
32. Any existing curb, gutter, curb ramp, driveway, and/or sidewalk on the project's ROW frontage that does not meet ADA criteria or that is damaged must be repaired or replaced at the direction of Right-of-Way Construction Inspection.
33. Protection and replacement of street improvements are the responsibility of the owner until these improvements are fully completed and accepted by the City and County.
34. The permittee shall not spray, cut, or trim trees or other landscaping elements within ROW unless such work is otherwise specified in this permit or clearly indicated on the approved plans.
35. Seeding, sodding, and planting in the ROW shall be as specified or otherwise approved by the City and County. Construction, maintenance, and watering requirements shall conform to City and County standard specifications. Where landscape restoration must be delayed due to seasonal requirements, such work may be authorized by a separate permit.
36. Unless streetscape has been approved, the developer shall landscape all ROW with sod and trees. All landscaping within the ROW shall be in conformance with the latest Streetscape Design Manual. No loose material (i.e., rock, bark, gravel, etc.) shall be allowed. Decorative concrete or low growing plant material may be allowed only with the specific approval of DES. Trees shall be pre-approved by the City and County Forester's Office and shall be a minimum of 20' from property corners at intersections, 20' from the edge of curb ramps, 25' from street lights and 10' from the edge of driveways.
37. The permittee should remove materials and equipment from the roadway ROW at the close of daily operations. The Traffic Control Plan (TCP) must include protective measures where materials and equipment may be stored in ROW, but ensure five feet of pedestrian clearance on sidewalks.
38. No cleated or tracked equipment may work in or move over paved surfaces without mats.
39. Street cuts in to Moratorium Streets will require either an overlay or infra-red patch. Coordinate moratorium street requirements with Right-of-Way Construction Inspection.
40. Where the use, convenience, and/or necessity of the public require, the Manager of Department of Transportation & Infrastructure (DOTI) may require the owners or agents of the property served by a curb cut to repair, alter, construct or reconstruct, close by replacing the curb, or to change the width and location of the curb cut.
41. Where the use, convenience, and/or necessity of the public require, the Manager of Department of Transportation & Infrastructure (DOTI) may modify, remove, or add traffic signs, pavement markings, or the on-street parking along the property frontage.
42. Prior to the solicitation of bids or proposals from general contractors, the developer of this project is strongly encouraged to schedule an office meeting with the Right-of-Way Services Construction Inspection team (PWpermits@DenverGOV.org or (303)446-3469) to discuss the project's impact to city traffic, streets, roads, alleys and sidewalks, and the associated ROW permit fees that will need to be paid by the selected general contractor.
43. Any saw cuts and patching shown in this TEP are approximate. The extent of the asphalt patching will be subject to the approval by the ROW Inspector in the field.

Site Specific Notes (Include these notes in TEP plan sets when applicable to the project)

1. A Sewer Use and Drainage Permit, issued by Department of Transportation & Infrastructure (DOTI) Permit Operations (PO), must be obtained for construction involving sanitary or storm sewer facilities.
2. A permit must be obtained for private improvements constructed within the public right-of-way. Contact PWPO and/or the Right-of-Way Construction Inspection group.
3. Where right-of-way fences need to be removed or cut to facilitate construction, approval must be given by CCD before work is done. Existing ROW/fence line must be established by good survey practices. The utility company shall supply and install new materials required to restore fence to acceptable condition. New posts and wire will be required including corner posts for gates placed in locations as determined by original survey. Fences will be replaced in kind according to CCD fencing standards.
4. If livestock are present in area of fence removal, a temporary fence (equivalent to the existing) shall be required to contain livestock until new fence is in place, at which time temporary fence may be removed.

Street Light Specific Notes (include when street light work is shown on the plan)

1. All street lights, including poles, foundations, conduit, electrical cabinets and boxes shall be installed to current Denver standards. Coordinate work with Denver Department of Transportation & Infrastructure (DOTI) Transportation and Mobility at 720-865-4000.
2. All work related to street lights, utility poles and electrical cabinets or boxes shall be performed by Xcel Energy. The contractor is responsible for all Xcel expenses related to the street lighting work.
3. The contractor shall call Xcel Energy's Builders Call Line, 1-800-628-2121 to initiate the process with Xcel Energy.
4. Be aware that there is a minimum 2-month lead time when ordering street light materials; the lead time is typically longer within special street light districts.

Pedestrian Light Specific Notes (Include when the project is proposing pedestrian lights within the ROW. Also include these notes on the Site Development Plan)

1. The adjacent property owner shall be responsible for all utility charges relating to the Pedestrian Lights as shown on this Site Development Plan.
2. The adjacent property owner shall maintain, repair and replace the Pedestrian Lights in like kind as necessary so that the Streetscape Improvements are kept in good condition.
3. All pedestrian light work within the ROW shall be performed with all appropriate ROW permits.
4. In the event the adjacent property owner fails to maintain the Pedestrian Lights shown on this site development plan, the City, through its manager of Department of Transportation & Infrastructure (DOTI), may provide written notice to such adjacent owner requiring the owner to repair and/or replace the Pedestrian Lights within thirty (30) days. If the owner fails to maintain to comply with the notice within thirty (30) days, the City, through the Manager of Department of Transportation & Infrastructure (DOTI), shall have the right to cause the Streetscape Improvements to be repaired and/or replaced and to bill the owner for the reasonable costs of such work. If the owner fails to pay such bill in full within thirty (30) days after receipt thereof, the City shall have the right to impose a mechanics' lien on the property enforceable in accordance with C.R.S. Section 38-22-101 et seq. Nothing herein shall limit the powers of the City to enforce these requirements in any manner provided for by law.

Street/Traffic/Parking Sign Specific Notes (include when sign work is shown on the plan)

1. All new or relocated street/traffic/parking signs shall be installed per current Denver standards. Coordinate work with Denver Department of Transportation & Infrastructure (DOTI) Transportation and Mobility by e-mailing parking.operations@denvergov.org
2. Contact Denver Department of Transportation & Infrastructure (DOTI) Transportation and Mobility prior to fabrication or installation of any street/traffic signs.
3. All work related to the street/traffic/parking signs shown in this plan shall be performed by the contractor. The contractor is responsible for all expenses related to street sign installation.

TEP Plan Requirements
(continued)

	<p>Parking Meter Specific Notes (include when parking meter work is shown on the plan)</p> <ol style="list-style-type: none"> 1. All parking meters shall be installed per current Denver standards. Coordinate all meter work with Denver Department of Transportation & Infrastructure (DOTI) Transportation and Mobility by e-mailing parking.operations@denvergov.org 2. Contact Denver Department of Transportation & Infrastructure (DOTI) Transportation and Mobility prior to ordering or installation of parking meter poles. Denver Department of Transportation & Infrastructure (DOTI) Transportation and Mobility will locate the exact meter location in the field. 3. The contractor is responsible for the installation and/or removal of the parking meter posts. Once posts have been installed or before posts have been removed, the contractor shall contact Denver Department of Transportation & Infrastructure (DOTI) Transportation and Mobility for installation and/or removal of the meter heads. 4. The contractor is responsible for all expenses related to parking meter installation except for the meter head. <p>Traffic Signal Specific Notes (include when traffic signal work is shown on the plan)</p> <ol style="list-style-type: none"> 1. All traffic signals shall be installed per current Denver standards. Coordinate work with Denver Department of Transportation & Infrastructure (DOTI) Transportation and Mobility at 720-865-4000. 2. Any major traffic signal work that includes new signal poles shall require an Xcel electric meter. 3. All work related to the traffic signals including poles and mastarms shall be performed by the contractor. The contractor shall install the electric meter pedestal. 4. Xcel Energy will provide the power source and electrical meter. The contractor is responsible for all Xcel expenses. The contractor shall call Xcel Energy's Builders Call Line, 1-800-628-2121 to initiate the process with Xcel Energy. All requests shall also be sent to Denver Department of Transportation & Infrastructure (DOTI) Transportation and Mobility. 5. Be aware that there is a lead time for Xcel's power source design and installation.
Design Criteria	<p>Designs that use the minimum criteria for a roadway alignment should be avoided wherever practical. The designer should only use the minimum criteria where physical conditions prohibit the use of less stringent criteria.</p> <ol style="list-style-type: none"> a) The Design Speed for a new street is determined by Department of Transportation & Infrastructure (DOTI) and is typically at least 5 MPH above the posted speed limit for arterial and collector streets and at least the posted speed limit for local streets. Running speed should be used as the Design Speed for existing streets. b) Maximum Grade = 7.0% (Steeper grades may be accepted at the discretion of DES). c) Minimum Grade = 0.7% (Flatter grades may be accepted at the discretion of DES). d) Maximum Grade change without a vertical curve = 0.50% e) Minimum Vertical Curve Length = 50 feet f) Minimum Horizontal Curve Length for deflection angles less than 10 degrees = 5 times the design speed for local streets, 10 times the design speed for collector streets, and 15 times the design speed for arterial streets g) Minimum Horizontal Radius shall be based on the design speed per the current AASHTO criteria for minimum radii on low-speed urban streets. Curvature for normally crowned streets shall be based on the design speed and a -2.0% cross slope. h) The Length of Vertical Curves shall be based on the design speed and designed to allow adequate sight distance (See AASHTO's Design Controls for Vertical Curves). i) Adequate sight distance must be provided along the entire roadway alignment and at each intersection, alley, and driveway. j) Streets shall intersect at a 90 degree angle (plus or minus 10 degrees) and provide at least 50 feet of tangency from the ROW line. Through travel lanes should line up across intersections. k) Alleys and driveways shall intersect the street ROW at a 90 degree angle (plus or minus 10 degrees) and provide at least 20' of tangency back from the ROW line. l) Maximum Desirable difference in elevation across street = 0.5'. m) Minimum street cross slope: 1.50% n) Maximum street cross slope: 4.00% o) Proposed sidewalk should have a 1.5% cross slope towards the street. Proposed tree lawn/amenity zone should ideally have a 2% cross slope towards the street but may increase to 4% due to site constraints with approval of DES. p) Intersection approach grades: <ul style="list-style-type: none"> • Maximum design slope at crosswalks: 1.50% • Maximum approach grades at intersections:

Design Criteria
(continued)

- o Local Street = 4% for at least 100 feet from the crosswalk
 - o Collector Street = 3% for at least 150 feet from the crosswalk
 - o Arterial Street = 2% for at least 200 feet from the crosswalk
- q) Curb bulb-outs at intersections should extend at least 20' back from the curb ramp and have a flowline radius of 15' for the curve closest to the sidewalk and 10' for the curve closest to the street centerline.
- r) Typical Curb Return radii are based on the following table:

Controlling (Highest) Roadway Class	Design Curb Radius * (in feet) Where there is on-street parking that is prohibited at the intersection		Design Curb Radius * (in feet) Where the travelled way is directly adjacent to the curb or where there is a bulb-out	
	Preferred (Minimum)	Maximum	Preferred (Minimum)	Maximum
Local	10	15	15	20
Collector	20	25	25	30
Arterial	Site Specific	Site Specific	Site Specific	Site Specific

* Curb Returns on streets with a high percentage of truck or bus traffic will need to be designed using turning templates instead of this table

Important Site-Specific Considerations

Please be aware of the following requirements when preparing the TEP:

- a) All existing and proposed sidewalk must be located entirely in the ROW. If there is not sufficient ROW, land must be dedicated to the City to provide ROW for sidewalk.
- b) Any land to be dedicated as ROW or conveyed as an easement to the City and County:
- Shall be documented by the developer with a Phase 1 Environmental Study. The results of this study may require additional studies and sampling. Any contamination must be removed by the developer before the land is conveyed or an easement is granted to the City and County. Contact the Department of Environmental Services for additional information.
 - Shall be free and clear of any encumbrances or easements. The developer must provide a current (within 30 days) title commitment for the property with the approved legal description. Facilities Planning & Management office and the City Attorney's office will review the title commitment for any encumbrances that will affect the property that will become ROW or an easement.
 - Shall have an executed Deed conveyed from the developer to the City and County of Denver prior to approval of the TEP.
 - Shall require submittal of a legal Description by the developer to DES Survey for review and approval.
- c) For any easements or land to be deeded to the City and County of Denver, the legal Description along with a copy of the DES approved Site Plan must be submitted by the developer to DES Survey for review and approval. This submittal must be done **before** DES will release any holds on shoring or foundation only building permits. The Asset Management Office will prepare the deed with the approved legal Description and submit the deed to the owner for signature. The land must be conveyed to the City and County **before** the TEP can be approved and before the superstructure building permit can be released by DES.
- d) Any access change on a State Roadway requires approval through CDOT. The developer shall complete CDOT Access Permit Application (form 137) for each proposed new access, access closure or access modification. These forms shall be submitted to the DES Transportation Plan Review Engineer along with all supporting documentation required by CDOT and the City and County. The CDOT Access Permit (CDOT form 101) must be released by CDOT prior to approval of the TEP.
- e) A cross access easement agreement is required for all shared accesses. The cross access easement agreement must be recorded with the clerk and recorder prior to approval of the TEP.

Important Site-Specific Considerations
(Continued)

- f) All commercial and multi-family projects that have bus stops adjacent to them must provide a CCD approved metal bus bench (non-advertising) on a concrete pad, which may be located in the ROW or on private property. If the bench is located on private property, an easement shall be required for public access to the bench. The pad and bench shall be installed and maintained by the adjacent land owner.
- g) Privately installed and maintained pedestrian lights within the public ROW will only be allowed if a mechanism for maintenance of the lighting is established, satisfactory to the Manager of Department of Transportation & Infrastructure (DOTI). The mechanism could be a recognized Home Owner's Association (HOA), a covenant, or a Special Maintenance District. Pedestrian lights shall be limited in height, lamp type and output per the requirements of Transportation and Mobility. All pedestrian scale lighting must be approved by Transportation and Mobility and should be included in the TEP for review and approval. Pedestrian lights will not be allowed where the city Traffic Engineer determines they will be in conflict with a traffic control device.
- h) Requests for a traffic signal at a full movement intersection must first meet warrant criteria in the MUTCD. Upon meeting these criteria, the signal must still be approved by the City Traffic Engineer.
- i) DES may include site-specific TEP requirements not included above after initial review.
- j) Current CCD Transportation Standards and Details must be used. Refer to: <https://www.denvergov.org/content/denvergov/en/denver-development-services/help-me-find-transportation-engineering.html>
- k) Where ramps are provided for motor vehicles to exit from a parking facility or from a private drive onto the public right of way, the ramps shall be sloped at 0.5% minimum to 2% maximum for a distance at least 20 feet inside of the building or at least 20 feet behind the property line. Vertical curves shall be used at all grade breaks.
- l) Any encumbrance placed in the ROW must meet the criteria in the Rules & Regulations for Encroachments in the Public Right of Way. If a Tier II or III encroachment permit is required, it must be in place prior to approval of the TEP.
- m) All Department of Transportation & Infrastructure (DOTI) Rules and regulations can be found at this link: <https://www.denvergov.org/content/denvergov/en/transportation-infrastructure/documents/rules-regulations.html>
- n) Sight Triangles need to be shown at all curb cuts and intersections. Show the sight triangles in the TEP (if required) and in the Site Plan on the site plan sheet and the landscaping sheet. Provide a note or label that describes the restriction placed on each sight triangle on each sheet. There are three sight triangles that need to be considered:
 - There needs to be a pedestrian sight triangle shown at each driveway and alley. The pedestrian triangle has a 10' leg located at the edge of the driveway and a 10' leg located at the back of the sidewalk. No items that are wider than 18 inches may be taller than 30" within this triangle.
 - There needs to be a corner sight triangle shown at each intersection. Corner triangles have a 30' leg located at the edge of each street flowline and a 30' leg located in the intersecting street's flowline. Corner triangles must be free of all items over 30" in height except for traffic control devices and equipment.
 - Roadway sight triangles based on AASHTO standards need to be shown at each driveway, alley, and intersection. For this triangle, place one leg of the triangle in the center of the exit lane of the driveway or intersecting street 18' back of the edge of travelled way and the other leg's length should be per AASHTO guidelines for departure triangles and located in the center of the approaching lane. No items that are wider than 18 inches may be taller than 30" within this triangle except for street trees and traffic control devices and equipment.

**Common TEP
Mistakes and
Missed Items**

The following is a list of items that are commonly missed:

- a) Show, callout, dimension and detail all work located in the public ROW.
- b) Show and label existing and proposed ROW lines. Dimension the ROW width on all adjacent streets.
- c) Show and label existing curb, gutter, sidewalk and accesses adjacent to the site. Show and label existing accesses and pedestrian ramps on the opposite side of the street.
- d) Dimension existing and proposed flowline to flowline width of all adjacent streets.
- e) Dimension existing and proposed sidewalk and amenity zone / tree lawn width of all street frontages.
- f) Label the cross slope of all sidewalk and tree lawn / amenity zone. Cross-slope of all sidewalk and tree lawn / amenity zone in the ROW along the property frontage shall be 1.5% except where transitioning to match existing.
- g) Show and label all existing and proposed pavement markings, traffic signs, signal poles, and street lights in the ROW along this site's frontage. Any of these items that need to be relocated or changed due to access changes or the sidewalk construction should be improved to current standards.
- h) Detail the construction of all curb ramps and curb cut(s). Provide grading detail of the new curb cut(s), including adequate spot elevations/dimensions/notes to ensure compliance with CCD and ADA criteria. Ensure that the sidewalk cross slope across the curb cut remains at 1.5%. Refer to standard detail to see how this is achieved.
- i) When tying the new curb cut to existing sidewalk and curb/gutter, remove existing sidewalk and curb and gutter to the nearest panel. Do not saw cut sidewalk or curb/gutter.
- j) Transition any on-site vertical curb and gutter from its 6" height to 0" height at property line over a distance of 6 feet.
- k) Call-out CCD Std Dwg Number for all proposed ROW improvements. For example:
 - Construct new curb cut(s) per CCD Std Dwg 6.1.
 - Construct new sidewalk per CCD Std Dwgs 5.2 and 5.4.
 - At new curb cut(s) and new curb and gutter, saw cut and patch adjacent asphalt pavement per CCD Std Dwg 12.0.
 - Construct new pedestrian ramps per CCD Std Dwgs 7.1-7.4.Please do not include these details in the TEP plans, simply refer to them by their CCD Std Dwg Number.

Please go to the following links for the standard details:
<https://www.denvergov.org/content/denvergov/en/denver-development-services/help-me-find-transportation-engineering.html>
- l) Show Sight Triangles and note the sight triangle restrictions on the TEP.
- m) Include the General Notes (1-43) and all applicable site specific notes on the TEP plan
- n) Provide curb/gutter profiles and cross sections per CCD standards or when requested.
- o) Design minimum/maximum gutter grades between 0.7% - 7.0%
- p) Design proposed street cross slope at 2%. In constrained sites, with the approval of the review engineer, the street cross slopes can vary between 1.5% - 4%.

**Document Location
(for internal use)**

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