Section of New Standards	Existing Standard or Policy	Proposed Language
3.0 Plan Development and Submittals	None	None
3.1 Operational and Safety Analysis Requirements	None	Capital improvement projects should be identified through an operational and/or safety evaluation. The approach to the evaluation will be unique to each type of project and should be based on collaboration with County Engineering staff. The following considerations may be integrated into the decision-making approach: • Review of existing conditions (operational capacity and crash history) • Review of community feedback • Review of the County Rural Transportation System Plan (RTSP) • Benefit/cost analysis • Project goals/intentions • Direction from County Board of Commissioners Identifying and documenting the original intended outcomes of the project can support project teams with understanding the motivations and reasons for the proposed improvements. As a project progresses through the various project development stages, project teams should verify that the project continues to meet the original project goals. For additional guidance on performance-based design, see Chapter 2: General Policies and Standards.
3.2 Surveying	None	For information on surveying, including existing and new monumentation, refer to Chapter 2.
3.3 Construction Plan Development	1990 Standards – Section III Construction Plans A. General Complete plans for all proposed improvements within or impacting public right- of-ways and county easements shall be submitted to the Department of Public Works for approval. Such plans shall be prepared under the supervision of and stamped by a Registered Civil Engineer. Construction of any improvements shall not begin prior to plan approval and issuance of a construction permit. B. Preparation Construction plans shall be prepared in accordance with the following requirements: 1. Plans shall have a vicinity map showing surrounding streets, including existing and proposed streets. 2. Plans shall have a north arrow, generally pointing to the top or right side of the plans. 3. Elevations shall be based on the current U.S.G.S. datum. 4. Stationing shall run from left to right of plan and profile. 5. Stationing shall commence (usually 0+00) at the south or west end of project and end at the north or east end of project. 6. Plan and profile generally shall be drawn at a scale of 1 inch equals 50 feet horizontal and 1 inch equals 5 feet vertical. 7. Profiles shall show existing ground along proposed centerline and right- of-way lines.	When an EOR is required for a private development project, and for all capital improvement projects, a construction-ready project shall, at a minimum, include a complete set of the following items: • Construction plans • Standard details • Construction specifications and special provisions • List of construction bid items with engineer's cost estimate. Additional documentation and reporting may also be required depending on the project specifics and be confirmed with County staff. Construction plans shall be prepared in accordance with the following requirements: A. Plans shall be configured on 11x17 sheets (preferred sheet size), unless 22x34 sheets are agreed upon at the start of the project. B. All text on construction plans is to be ALL CAPS, minimum 0.08-inch font height, and abbreviations are without periods. Text of embedded standard detail drawings shall be legible. C. Road names on construction plans shall consist of the road name and type (RD, ST, AVE), but not the direction (NE, SW), unless confusion is likely. D. Plans shall have a vicinity map showing surrounding roads, including existing and proposed roads. E. Plans shall have a north arrow, generally pointing to the top or right side of the sheet.

Section of New Standards	Existing Standard or Policy	Proposed Language
	8. Where cut or fill slopes extend outside of the right-of-way, slope easements are required. Easements shall extend one foot outside of the toe of slope and be shown on plans. Street slope arrows shall be pointed down hill. 9. At all vertical curves, plans shall show curve length, stations and elevations or PIVC's, BVC's, and EVC's. 10. On all horizontal curves and curb returns, plan shall show length of curve, radius, deflection angle and stations of P.C.'s, and P.T.'s. Curb returns shall have elevations shown at P.C.'s and P.T.'s. 11. Wheelchair/bicycle ramps are required at each curb return at all intersections. Catch basins shall be located to avoid coinciding with ramps or shall use Type "B" grate. 12. Boundaries of the involved drainage basins, with topographic features and drainage facilities, shall be shown. See Section V, B, 1 for further details. 13. Roadside ditches shall be shown on plan view. 14. Pipe diameter, material and class of pipe shall be indicated on profile. 15. Plans shall show slopes (Ft./Ft.) and inverts on all pipes and channels. 16. Plans shall show typical section of all street sections and/or channel improvements. 17. Plans shall show all existing and proposed utility locations. New utilities in public right-of-ways must comply with the locations shown on Standard Drawings Numbers 2, 3, and 4. 18. Where feasible, general notes shall be consolidated on a single page. Repetition of general notes or inclusion of standard plans requires redundant review and affords unnecessary opportunities for oversight. 19. All traffic control and street signs shall be shown on plans. Cost of signs and installation shall be the responsibility of the developer, but signs may be installed through a work order by county forces on a time available basis.	F. Horizontal position shall be based on either a local coordinate system identifying the basis of bearings, Oregon State Plane (North Zone) or the Oregon Coordinate Reference System (Salem Zone), identifying the appropriate datum and epoch. G. Elevations shall be based on the NAVD88 datum used for the topographic survey, except areas within FEMA's mapped Special Flood Hazard Area shall use NGVD29, identifying the geoid for the datum used. H. Where feasible, general notes shall be consolidated on a single page. Repetition of general notes or inclusion of standard details requires redundant review and affords unnecessary opportunities for oversight. I. Plans shall show a typical section of all road sections and/or channel improvements with centerlines, rights-of-way, and easement lines shown. J. Stationing shall run from left to right on the plan and profile. K. Stationing shall commence (usually 10+00) at the south or west end of the project and end at the north or east end of the project. L. Plan and profile generally shall be drawn at a standard engineering scale of not larger than 1 inch equals 40 feet horizontal and 1 inch equals 4 feet vertical. M. Profiles shall show existing ground along the proposed centerline. N. Where cut or fill slopes extend outside of the right-of-way, slope easements should be considered. Easements, including those for temporary construction, shall extend a minimum of one foot outside of the toe of slope and be shown on plans. O. At all vertical curves, plans shall show curve length, stations and elevations of points of vertical inflection (PVI), beginning of vertical curve (BVC), end of vertical curve (EVC), and high-or low-points, when appropriate. Both K and AD values shall also be given. P. On all horizontal curves and curb returns, plans shall show length of curve, radius, deflection angle and stations of point of curve (PC) and point of tangent (PT). All curb returns shall have profiles with elevations shown at the PC and PT. Q. Pipe bedding and trench backfill should be specified on the plan or profile and should follow Standard Drawings. R. Roadside ditches shall be shown on plan view. S. Pipe diameter, pipe material, and class shall be indicated on the plan and profile. Pipe material and class may be omitted if a pipe data table is provided. T. Plans shall show slopes and invert elevations on all pipes and channels. U. Plans shall show all existing utility locations. New utilities in public rights-of-way must comply with the locations shown on County Standard Detail – Standard Utility Location for Urban Roads or Standard Utility Location for Rural Roads, whichever is applicable. V. When the data is available, all crossings and potential conflicts between storm sewers and other underground utilities shall be shown on the profile. W. All traffic control devices, pavement markings, and road signs shall be shown on plans. For private development projects the cost of signs and installation shall be the responsibility of the developer, but signs may be installed through a work order by County forces on a time available basis.

Section of New Standards	Existing Standard or Policy	Proposed Language
3.4 As-Constructed Plans	1990 Standards – Section III Construction Plans E. As-Built Submittal As a condition of facility acceptance, the county requires the developer's engineer to inspect construction of the project and furnish a complete set of mylar drawings upon completion. Such drawings shall be marked "As-Built" and describe any and all revisions or additions to the approved plans. On the first page of these drawings, the developer's engineer shall make the following statement and affix his stamp adjacent thereto: "I hereby affix my seal to certify that these improvements have been inspected and constructed in conformance with these plans as approved by the Public Works Director and the general specifications adopted by the Marion County Department of Public Works."	At the completion of construction, and as a condition of facility acceptance for privately developed infrastructure, the engineer of record (EOR) shall be responsible for providing as constructed drawings (as-constructed plans) and Computer Aided Design (CAD) files for all improvements including all construction changes, added and deleted items, location of utilities, etc. The as-constructed plans shall be submitted to the County upon project completion and shall, at a minimum, include the following: A. Revised plans that address redline markups from the contractor and project inspector. When required, field survey data by a land surveyor that provides the actual invert and rim elevations of sanitary and storm sewer systems within the project shall be provided. B. EOR shall submit one set of stamped as-constructed plans with "AS-CONSTRUCTED" across the signature. Plan sheets not involving verification of infrastructure features (i.e., Traffic Control, Construction Staging, Existing Conditions, Demolition, Erosion Control) are not required for the as-constructed plans. As-constructed plans shall be submitted via email, flash drive, or non-rewritable CD in dwg and pdf formats. C. As-constructed plans shall include the following text on the first page of the plan set: "This as-constructed drawing has been prepared, in part, based upon information furnished by others. While this information is believed to be reliable and represent actual improvements constructed, a post-construction topographic survey of the improvements was not conducted. Engineer assumes no responsibility for the accuracy and completeness of these as-constructed drawings. Parties relying on this document are advised to obtain independent verification."
3.5 Preconstruction Conference	1990 Standards – Section III Construction Plans D. Preconstruction Conference At the discretion of the Director of Public Works, a preconstruction conference may be required. The conference shall include representatives of the following groups: 1. Developer 2. Contractor 3. Marion County Department of Public Works 4. Utilities 5. Other groups involved in the project	A preconstruction conference shall be required for all public improvements involving an EOR. At the discretion of the County Engineer, a preconstruction conference may be required for other types of projects. The conference shall include representatives of the following groups: • Contractor • Department of Public Works • Utility Providers • Developer (private development projects only) • Other groups involved in the project
3.6 Capital Improvement Projects	None	A designated County project manager will oversee each capital improvement project. Project design teams may be made up of internal County staff or a team comprised of external design consultants, managed by County staff. Capital improvement projects may require discipline experts in areas, including, but not limited to, transportation planning, survey, roadway, stormwater and water resources, structural, geotechnical, rights-of-way, and public involvement. Each project should be evaluated and include appropriate County representatives based on the specific discipline needs.

Section of New Standards	Existing Standard or Policy	Proposed Language
3.6.1 Capital Improvement Project Submittals	None	Capital improvement projects shall adhere to a submittal process that provides opportunity for design reviews at each milestone. Gathering input early in the project development phase and at regular intervals during design allows for the team to adjust course while limiting re-design efforts. Table 3-1 provides an outline of a typical project submittal process. The items in Table 3-1 will not apply to every capital improvement project. Each project should evaluate the specific plan and submittal needs during the scoping phase and develop a project-specific submittal plan.

<table>
<tr><th>Section of New Standards</th><th>Existing Standard or Policy</th><th>Proposed Language</th></tr>
<tr><td></td><td></td><td>
Table 3-1: Typical Project Submittal Process and Items for Capital Improvement Projects
<table>
<tr><th>Design Submittal</th><th>Submittal Items</th></tr>
<tr><td>30% Design Submittal</td><td>• Draft Geotechnical Report
• Draft Stormwater Report
• Draft Structural Analysis
• Design Vehicle Checks
• Sight Distance Exhibits
• Fastest Path Performance Checks (Roundabouts Only)
• Existing Utilities Map (1st Notification)
• Draft Right-of-Way Impact Map and Legal Descriptions
• 30% Design Plans
• Preliminary Cost Estimate</td></tr>
<tr><td>60% Design Submittal</td><td>• Final Geotechnical Report
• Updated Draft Stormwater Report
• Final Structural Analysis
• Preliminary Utility Conflict Map (2nd Notification)
• Right-of-Way Impact Maps & Appraisals
• 60% Design Plans
• 60% Cost Estimate
• Draft Erosion Control Plans
• Draft Special Provisions
• Documentation of 30% Comment Responses</td></tr>
<tr><td>90% Design Submittal</td><td>• Final Stormwater Report
• Updated Utility Conflict Map
• Updated Right-of-Way Impact Map
• 90% Design Plans
• 90% Cost Estimate
• Erosion Control Plans (Submit 1200-CA, if required)
• Recorded Right-of-Way Legal Descriptions
• Revised Special Provisions
• Documentation of 60% Comment Responses</td></tr>
<tr><td>100% Design / Bid Ready PS&E Submittal</td><td>• 100% Stamped and Signed Design Plans
• Final Cost Estimate
• Final Erosion Control Plans
• Final Right-of-Way Certification (or Prior to Bid)
• Final Special Provisions
• Documentation of 90% Comment Responses
• Bid Documents
• Utility Coordination Verification</td></tr>
</table>
</td></tr>
<tr><td>3.6.2 Capital Improvement Project Schedule</td><td>None</td><td>Project design and construction schedules will vary widely based on project type. A detailed project schedule should be prepared by the County project manager during the scoping stage. Schedules may be updated as the project progresses.</td></tr>
</table>

Section of New Standards	Existing Standard or Policy	Proposed Language
3.6.3 Quality Control Review Process	None	Each capital project shall complete a quality control process. Refer to the County Quality Control Plan for Capital Projects for guidance on completing quality control.
3.7 Private Development Projects	None	All proposed private development construction projects that impact public rights-of-way and/or County easements shall submit plans for approval to the County Land Development Engineering & Permits (LDEP) section. Such plans shall be prepared under the supervision of and stamped by a Registered Civil Engineer in Oregon (refer to Chapter 2, Section 2.6 for details when an EOR is required). Project teams may contact the County to request example plans for various project types to support project teams in developing plans that align with the County's expectations. Construction shall not begin prior to plan approval and issuance of LDEP permit(s).
3.7.1 Private Development Project Submittals	1990 Standards – Section III Construction Plans C. Submittal Construction plans and calculations for the proposed improvements shall be submitted as follows: 1. In accordance with Marion County Ordinance No. 671, the first submittal shall be accompanied by a completed Plan Check form and the required fees. 2. The first submittal shall consist of two sets of prints of sewer, water, road and drainage plans, profiles, and detail sheets and one set of drainage area plans and drainage calculations. The Department of Public Works will review the first submittal and indicate the required revisions. 3. The engineer shall revise the plans as required and make a final submittal which shall consist of three sets of prints of sewer, water, road and drainage plans, profiles, and detail sheets. Upon the approval by the Director of Public Works, written notice will be given to the engineer with a copy to the developer. 4. Revisions: Any design changes made after final approval shall be approved by the Department of Public Works prior to construction. 5. In accordance with Marion County Ordinance No. 671, prior to beginning construction, a Construction Permit shall be obtained from the Department of Public Works and the required fees shall be paid.	Construction plans and calculations for the proposed improvements shall be submitted as follows: A. In accordance with Marion County Code Chapter 11.15 Improvement of Public Rights of Way, the initial submittal shall be accompanied by a completed Plan Check Form, evidence of utility coordination (may include documented requests), and the required fees. B. The initial submittal shall be shared electronically and consist of PDFs of sewer, water, road, and drainage plans, profiles, and detail sheets and one set of drainage area plans and drainage calculations. The County Department of Public Works will review the first submittal and indicate the required revisions. C. The EOR shall revise the plans as required and make a subsequent, typically final, submittal which shall consist of PDFs of the sewer, water, road and drainage plans, profiles, and detail sheets and be submitted electronically with EOR electronic stamp. Upon the approval by the County Department of Public Works, the County will email an approved PDF of the plans to the Development Team. Hard copies of the approved plans may be provided at the request of the Development Team. D. Any design changes made after final approval shall be approved by the County Department of Public Works prior to construction. For each change, the County, in consultation with the EOR, will determine if the particular change warrants an immediate plan sheet update, an exhibit, or as-constructed. E. In accordance with Marion County Code Chapter 11.15, prior to beginning construction, a Construction Permit shall be obtained from the County Department of Public Works and the required fees shall be paid.
3.7.2 Private Development Project Fees	Marion County Code Chapter 11.10 Approach Road 11.10.140 Fees A. An administrative and inspection fee shall be required for each approach road access permit issued. Such fees shall be as ordered by the board of commissioners from time to time. B. Any revenue received pursuant to this chapter shall be deposited in the Marion County road fund and such administrative cost as may be incurred by the building inspection division in the collection of the permit fees pursuant to this chapter shall be deposited in the building inspection division fund. C. The director may waive the fee if applicant is a federal, state, city or other public body.	Project fees are based on current County Board of Commissioners adoption.

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	D. No fee will be charged for work being done by or under a contract with Marion County. Marion County Code Chapter 11.15 Improvement of Public Rights-of-Way 11.15.100 Fees Beginning June 1, 1984, accompanying all applications shall be the fees, as set forth below, to be charged for administrative engineering and inspection cost: A. Plan Check Fee. A $50.00 or 0.75 percent of the engineer's estimate of the street and storm drain construction or reconstruction cost of the proposed project, whichever is greater. B. Construction Permit Fee. A $50.00 or one percent of the engineer's estimate of construction or reconstruction cost for the street and storm drain improvements of the proposed project, whichever is greater. C. Sidewalk and Curb Construction. Fees shall be as established by the board of commissioners and revised annually, if necessary. D. Storm Drain Sewer and Water Connection Permits. Fees shall be as established by the board of commissioners and revised annually, if necessary. In computing the plan check and construction inspection fees, the estimated value of the proposed construction submitted by the engineer shall be considered reasonable if it is comparable to the current construction price list on file with the director. Said list will be updated by the director on January 1st of each year. Work being done under contract with or by Marion County shall be exempt from provisions of this section. Marion County Code Chapter 15.10 Construction Erosion and Sediment Control 15.10.070 Permit Fee The county may establish a fee for review of plans and inspections required by this chapter by order of the board of commissioners. The board of commissioners shall set the fee to recover the public works department costs of providing an applicant's erosion prevention and sediment control permit, inspections, and plan review. Marion County Code Chapter 15.20 Post-Construction Runoff Control 15.20.210 Fees The board of commissioners may adopt fees necessary to support the stormwater program by board order.	
3.8 Transportation Report or Impact Analysis Requirements	Policy and Procedure Marion County Department of Public Works Transportation Impact Analysis (TIA) Requirements A Transportation Impact Analysis (TIA) evaluates the adequacy of the existing transportation system to serve a proposed development, and the expected effects of the proposed development on the transportation system. The TIA should provide adequate information for	Depending on the size of a private development project, a site transportation report (STR) or transportation impact analysis (TIA) may be required to assess the impacts of a proposed project or land use action on the transportation system and to identify any needed mitigation to address capacity, multimodal, or safety deficiencies. In approving a land use action that requires a TIA, the County may condition that approval on identified mitigation measures.

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	County staff to evaluate the development proposal and, when appropriate, recommend conditions of approval. Throughout the Transportation Impact Analysis process (and beginning as early as possible), cooperation between County staff, the applicant, and the applicant's traffic engineer is encouraged to provide the best possible conditions for the traveling public and potential users of the proposed development, and to reduce TIA report revisions and review time. If County staff can be of assistance in any way during this process, or if any questions arise about this process, please do not hesitate to consult us for clarification or assistance. Marion County staff may, at its discretion, and depending on the specific situation, require additional study components in a TIA or waive requirements deemed inappropriate. Marion County staff may waive a TIA that would otherwise be required if the developer agrees to certain conditions of development. Marion County assumes no liability for any costs or time delays (either direct or consequential) associated with Traffic Impact Analysis preparation and review. Marion County Public Works reserves the right to charge an hourly fee to cover staff time for excessive or repeated reviews necessitated by TIA inaccuracies or deficiencies.	
3.8.1 Type of Study Required	Policy and Procedure Marion County Department of Public Works Transportation Impact Analysis (TIA) Requirements When Will A Transportation Impact Analysis Be Required? A Transportation Impact Analysis shall be required for: A) Any proposed development that can be reasonably expected to generate more than 600 vehicle trip ends during a single day and/or more than 100 vehicle trip ends during a single hour. B) Any proposed zone change that, in typical build-out scenarios, can be reasonably expected to generate more than 300 vehicle trip ends more than the previous zoning during a single day C) Any development within the Urban Growth Boundary of a city if the development would meet that city's criteria for requiring a Transportation Impact Analysis. A Transportation Impact Analysis may be required for: A) Any proposed development that can be reasonably expected to generate more than 200 vehicle trip ends during a single day or more than 40 vehicle trip ends during a single hour. B) Any case in which, based on the engineering judgment of the Public Works Director, the proposed development or land use action would significantly affect the adjacent transportation system. Examples of such cases include, but are not limited to ,: non-single family development in single-family residential areas, proposals adding traffic to or creating	The following vehicle trip generation thresholds shall determine the level and scope of the study required for a proposed project or land use action, unless otherwise determined by the County Engineer. To determine the type of study required, applicant shall analyze the higher of the AM or PM peak hour of development. Contact Marion County Traffic Engineering to determine if the trip generation for the development meets the thresholds for a STR or TIA. A. No study is required if there are fewer than 50 trips per peak hour generated, unless 10 or more vehicles per day exceed 20,000 pound gross vehicle weights. B. Site Transportation Report (STR): If the development or change in use will cause the site to generate 50-100 peak hour trips, an STR will be required. A STR will also be required for a proposal that results in 10-30 vehicles per day exceeding 20,000 pound gross vehicle weights. C. Transportation Impact Analysis (TIA): If the development or land use action will generate more than 100 peak hour trips and/or more than 30 vehicles per day exceeding 20,000 pound gross vehicle weights, a TIA shall be required. D. City Required TIA: Any development or land use action within an Urban Growth Boundary that meets the city's criteria for requiring a TIA must also submit a TIA for the County. E. State Required TIA: Any development or land use action that meets the state's criteria for requiring a TIA due to ***Examples of 50 peak hour trips:*** • 50 single family homes • 70 apartments, condos, or townhouses • 12,000 sq ft floor area retail • 55,000 sq ft floor area industrial • 6,000 sq ft floor area plant nursery

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	known or anticipated safety or neighborhood traffic concerns, or proposals that would generate a high percentage of truck traffic (more than 5% of site traffic).	impacts to a state facility must also submit a TIA for the County. F. Zone Change and Comprehensive Plan Amendment TIA: A TIA shall be required as necessitated by Oregon Administrative Rule (OAR) 660-012-0060, the Transportation Planning Rule (TPR), for any proposed zone change or comprehensive plan amendment that results in an increase in 400 or more daily trips. Per the 1999 Oregon Highway Plan (OHP) Policy 1F.5, an amendment or zone change that results in a less than 400 daily trip increase does not constitute a significant effect per the TPR and does not require preparation of a full TIA for the County. Refer to the current edition of the OHP for the most up-to-date guidance. Projects proposing to use an existing access to a roadway under County jurisdiction are evaluated for crash patterns by Public Works. If a crash pattern is identified mitigation measures shall be required to bring the access into conformance with these standards to the maximum extent feasible.
3.8.2 Minimum Requirements for All Studies	Policy and Procedure Marion County Department of Public Works Transportation Impact Analysis (TIA) Requirements Calculation Of Trip Generation And Distribution Trip generation data provided in the most recent edition of the ITE publication Trip Generation should be used unless more appropriate data is available. Average trip generation formulas (where applicable) or rates are normally used; however, more conservative calculations may be required by staff in some cases. Directional trip distribution assumptions should be based on historical data, existing and future travel characteristics, and capacity constraints. County staff may require data collection at similar facilities if County staff determines that insufficient trip generation data is currently available. To reduce revisions and review time, approval of the trip generation and distribution assumptions (including any applicable pass-by, internal, or diverted linked trip percentages) and methodology should be obtained from the Public Works Department before using these assumptions in the Transportation Impact Analysis . Determination Of The Area For Which Analysis Is Required The Transportation Impact Analysis shall address at least the following areas: A) All proposed site access points. B) Any road segment or intersection where the proposed development can be expected to generate more than 360 additional vehicle trips during a single day or more than 60 additional vehicle trips during a single hour (these typical volumes may need to be adjusted for unusual situations, such as heavy truck traffic, safety issues, or capacity limitations). If a two-way-stop controlled intersection currently functions acceptably and the proposed development would be expected to generate a total of less than 60 additional vehicle trips per day on the minor leg(s) of the intersection, it need not be included in the study area as a result of this	Preapplication Meeting & Written Scope If a study is required, the applicant shall participate in a preapplication meeting with County Engineering staff to develop a written scope that will define the study requirements and methodology of the type of study required. Study Approval Process The required study shall be submitted concurrently with the land use application and shall be prepared by a registered professional engineer who is licensed in the State of Oregon. The County Engineer shall determine when the report has satisfied all the requirements of the development's impact analysis. Incomplete reports shall be returned for completion. All studies shall provide: A. A vicinity map showing the location of the project in relation to the transportation system of the area; B. A complete description and drawing of the proposed development; C. A description of the TIA study area, including roadway names, locations and functional classifications, intersection lane configuration and traffic control (including signal timing), transit routes and stops (if any), pedestrian and bicycle facilities, and planned transportation system improvements; D. Trip generation forecast using data from the most recent edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual, unless more appropriate data is available and approved by the County Engineer; E. Trip distribution; F. Trip assignment; and G. Safety analysis of the site accesses Study Trip Generation & Trip Distribution

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	requirement. County staff may, at their discretion, choose to waive study of certain intersections if they deem such study to be unnecessary. C) Any road segment or intersection where the additional traffic volume created by the proposed development is greater than 10 percent of the current traffic volume (for road segments) or the current entering volume (for intersections). Public Works staff may, at their discretion, choose to waive study of certain intersections in some cases. D) For developments expected to generate more than 30 truck trips per day, the TIA study area shall include the route(s) that these trucks would take from the site to and from the arterial system. E) Any other intersections adjacent to the subject property. F) For developments expected to generate a significant percentage of truck traffic (more than 5 percent of site traffic), consult Public Works staff to determine the study area. G) Any other intersections identified by Public Works staff as having capacity, safety, neighborhood, and/or geometric concerns. Consultation in advance with Public Works staff to determine the extent of the study area is strongly encouraged. Transportation Impact Analysis (TIA) Report Requirements The preparer is encouraged to coordinate preparation with County staff and staff from other jurisdictions, as appropriate to ensure that all necessary components are included in the TIA and to reduce TIA revision and review time. In order to be reviewed, the Transportation Impact Analysis (TIA) report shall include at least the following minimum components (incomplete reports will be returned to the applicant's representative for completion): 1) The TIA report shall be signed and stamped by a Professional Civil or Traffic Engineer registered in the state of Oregon. 2) An executive summary, discussing the development, the major findings of the analysis, and the mitigation measures proposed. 3) A vicinity map showing the location of the proposed project in relation to the transportation system of the area. 4) A complete description of the proposed development, including a site plan, with the best available information as to the nature and size of each proposed use, and the proposed	The peak hour and daily vehicular trip generation associated with a proposed development or land use action shall be calculated based upon the latest edition of the ITE's Trip Generation Manual and Trip Generation Handbook. If a trip generation rate similar to the proposed development or land use action is not available within the Trip Generation Manual, applicant shall get approval of alternate rate by County Engineer. In general, the procedures outlined in the Trip Generation Handbook regarding obtaining local trip rates should be used. The trip generation and distribution of those trips to the road network shall be confirmed through the written scope agreed upon by the applicant and County Engineer. Study Area & Trip Assignment After consulting with other affected jurisdictions, the County Engineer shall determine the impact analysis area for the STR or TIA. The study area shall include, at a minimum: A. All site access points to the public roadway system via either a driveway or private roadway shall be studied; B. Nearest intersecting collector or arterial roads to the development that would experience an increase of 25 or more additional peak hour trips; and C. Any other collector or arterial intersection requested by a city and/or Oregon Department of Transportation (ODOT). Safety Analysis & Sight Distance STRs and TIAs shall analyze the safety of the transportation network, including: A. Evaluation of sight distance at the site access(es), B. Crash history at the study intersections and site access locations, C. Access spacing, and D. Heavy vehicle circulation/access (when applicable). Regardless of study required, developments that propose a drive-through service shall provide a queue analysis that evaluates the impact of queues on public roadways.

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	location and traffic control of all proposed access points (including the distance from all proposed access points to adjacent accesses and/or streets). 5) A brief description of the current (and proposed, if applicable) land uses adjacent to the site, including the location, size, zoning, current use, and future use of any land parcels that are not part of the subject application, but may use the subject parcel for all or part of their access. If there is potential for development of these parcels, include the best available information as to the potential future use of each parcel. 6) A description of the TIA study area, including roadway names, locations and functional classifications, intersection lane configuration and traffic control (including signal timing), existing Right-of-Way, transit routes and stops (if any), pedestrian and bicycle facilities, and planned transportation system improvements. 7) Existing traffic volumes (measured during design conditions and/or the peak season within the previous 12 months, unless County staff deems newer counts necessary due to recent development or seasonal variations). Consult County staff to determine what type of count data (turning movement, ADT, or classification) is necessary. 8) Accident data within the study area for the most recent available three year period (accident data can be obtained from the Oregon Department of Transportation). 9) Existing performance of the transportation system, including Levels of Service (LOS) and Volume/Capacity ratios (V/C) for all intersections and road segments as appropriate within the study area. 10) Complete trip generation figures for all aspects of the proposed development, including number of trips by vehicle type and size, and time-of-day and entering/exiting percentages. These figures shall include trip generation figures for any other proposed developments on the subject property, and/or any proposed developments that would share access with the subject property. For developments expected to generate a significant amount of truck traffic (more than 30 trucks per day), include separate figures for trucks. Document the sources of this trip generation data. If the source is other than ITE's Trip Generation, the preparer must obtain approval of the use of such data from County staff before using it in the TIA. 11) Trip generation figures for any pending and approved developments that would affect the study area. County staff will facilitate procurement of applicable data in these cases. 12) Identification of the critical analysis period(s) and justification of this identification. 13) Trip distribution for the proposed development. For developments expected to generate more than 30 truck trips per day, include separate trip distribution figures for trucks.	

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	14) Forecast traffic volumes without the development, in the year that the proposed development is planned to open, and in the horizon year (consult County staff for information to determine these future traffic volumes). If phased development is proposed, include projections for the year that each phase of the development is planned to be complete. 15) Forecast performance (including LOS and V/C) of the transportation system without the development in the year that each phase is planned to be complete and in the horizon year. 16) Forecast traffic volumes, including the proposed development traffic, in the year that each phase of the development is planned to open, and in the horizon year. 17) Forecast performance (including LOS and V/C) of the transportation system, with the proposed development, in the years that each phase of the proposed development is planned to open, and in the horizon year. Include analysis of signal warrants, signal progression, queue lengths, and other traffic flow characteristics as appropriate. For developments expected to generate a significant percentage of truck traffic, demonstrate how the analysis adequately accounts for the presence of these trucks in the traffic flow. 18) Safety analysis of the site accesses, including sight distance and operational characteristics. 19) Analysis of right and left turn lane warrants, queue lengths, acceleration lanes, throat lengths, channelization, and other characteristics of the site accesses as appropriate. 20) Comparison of the location and spacing of the proposed accesses with Marion County standards, the standards of the appropriate city for developments within Urban Growth Boundaries, and/or Oregon Department of Transportation standards for developments near state highways. 21) Analysis of the parking needs of the proposed development, the adequacy of the proposed facilities to meet those needs as appropriate, and the conformance of the proposed parking facilities to applicable standards. 22) Evaluation as appropriate of the turning and traveling characteristics of the vehicles that will be using the proposed development and the adequacy of the geometrics of the existing and proposed roadway (public and/or private) configurations to accommodate these characteristics. 23) Analysis as necessary of the adequacy of the internal vehicle and pedestrian circulation systems to serve the proposed development and how the design of the development	

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	addresses the Transportation Planning Rule requirements regarding pedestrian-, bicycle-, and transit-friendly developments. 24) Analysis as appropriate of any potential adverse or controversial effects of the proposed development on the transportation system or quality of life in the area. Examples of possible effects include, but are not limited to, infiltration of non-residential traffic into residential neighborhoods, traffic noise, creation of potential for traffic violations, conflicting turning movements with other driveways, etc. 25) Analysis as appropriate of the effect of the proposed development on pedestrian and bicycle transportation in the area, and any new pedestrian or bicycle transportation needs arising from the development. 26) Listing of all intersections and locations that are projected to not meet Marion County (or other jurisdiction, as appropriate) intersection performance standards in the TIA study area during the required analysis period (see methodologies for Marion County intersection performance standards). 27) Description and analysis of mitigation measures necessary to bring these intersections and locations into compliance with the applicable standards. Include analysis showing that these measures will bring these locations into compliance and include signal, turn lane, or other warrant analyses as appropriate. The TIA shall also specify the timing and phasing of any new traffic signals and the length of any new turn lanes. Any mitigation measures recommended in the TIA shall be physically and economically feasible, and this feasibility may need to be demonstrated in questionable cases. 28) Copies of raw traffic count data used in the analysis (this may be presented in an appendix). 29) Calculation sheets and/or computer software output for all LOS and V/C calculations in the analysis. For signalized intersections, this must include the signal timing used in the analysis (this may be presented in an appendix). 30) Warrant worksheets for signals, turn lanes, signal phasing, all-way-stops, and other proposed measures as appropriate (this information may be presented in an appendix). Horizon Year The horizon year of a Transportation Impact Analysis is the most distant future year that shall be considered in the Transportation Impact Analysis. The horizon year will be a specified number of years after the development opens, and this number will vary depending on the size of the development, any land-use plan changes necessary to allow it, its uses, and the anticipated time until full buildout. The following table shows the TIA horizon year (expressed in	

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	years after the development is planned to open) for developments expected to generate less than 5% truck traffic: Development Type / Trip Generation Per Day Horizon Year Any Zone Change 20 years Other Development, Less Than 1,000 0 years Other Development, 1,000 to 1,999 5 years Other Development, 2,000 to 4,999 10 years Other Development, 5,000 or more 20 years For developments expected to generate more than 5% truck traffic, consult County staff for the TIA horizon year. County staff may, at their discretion, reduce the horizon year in cases where less future study is necessary. Methodologies and Analysis Parameters A) All signalized and all-way-stop controlled intersections shall operate at a Level Of Service D or better (all individual movements shall operate at LOS E or better) with a Volume/Capacity ratio of 0.85 or less. Other unsignalized intersections (including unsignalized private accesses) shall operate at Level Of Service E or better, although LOS F may be allowed if the movement has a relatively low volume (as determined by County staff) and there is no indication that a safety problem will be created. Intersections within the Urban Growth Boundary of a city shall also meet the intersection performance standards of that city. Intersections near state highways shall also meet the standards of the Oregon Department of Transportation. B) Acceptable analysis methods include the most recent Highway Capacity Manual, PASSERII, HRR211, TRANSYT-7F, SIGCAP, and UNSIG10 for most cases. For high percentages of truck traffic, unusual types of intersections, or other cases which do not specifically fit the circumstances for which the above analysis tools are intended, or if the engineer believes that another analysis method more accurately models the situation, consult County staff for determination of the appropriate analysis procedure. Analysis performed using methods not accepted by County staff will be returned to the applicant's representative for revision and correction. C) Signal timing used in capacity or progression analysis shall use the same cycle length as is currently in use at the intersection, unless specifically noted otherwise, and shall not exceed 136 seconds. Signal timing shall provide adequate available green time (according to Marion County standards) for pedestrian crossing in all directions, and shall provide a minimum of 15	

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	seconds of available green time for protected left turn phases, and a minimum of 10 seconds of available green time for protected/permissive left turn phases. Current yellow and all-red time shall not be decreased. D) Saturation flow rates greater than 1800 passenger cars per hour per lane shall not be used unless specifically measured at that location. E) Peak Hour Factors greater than 0.85 shall not be used unless justified by specific counts at that location. F) Arrival Type 3 (random arrivals) shall be used in signalized intersection analysis unless specific measurements at that intersection indicate otherwise. G) Signal Progression shall be analyzed in all cases where either a new signal or a change in signal timing is proposed on a roadway with more than two traffic signals (including the new signal, if appropriate) in the space of one mile. A minimum greenband width equal to 40 percent of the cycle length shall be maintained on all arterials, at a progression speed within five miles per hour of the posted speed limit. H) Any proposed signal timing shall provide adequate green time for pedestrians to cross all legs in all directions, at a speed of 4 feet per second, plus a six-second cushion. I) All calculations and analysis results should be reasonable, understandable, consistent, and fully explained. Calculations, graphs, tables, data, and/or analysis results that are contrary to good common sense will not be accepted, and may lead to the TIA being returned to the applicant's representative for correction. J) The conclusions presented in the TIA shall be consistent with and supported by the data, calculations, and analysis in the report. Inconsistent and/or unsupported conclusions will not be accepted, and may lead to the TIA being returned to the applicant's representative for correction. K) Provide two copies of the Transportation Impact Analysis report for County Staff to review. If any portion of the study area falls within another jurisdiction (such as a state highway or a city), consult that jurisdiction to determine the number of additional copies that they will need for their review. L) The attached checklist will be used by County staff to determine if a TIA contains sufficient information to be reviewed. Incomplete and/or unacceptable TIAs will be returned to the applicant's representative for completion and/or correction. Acceptance for review does not certify adequacy and is in no way an approval. Additional information may be required after acceptance of the TIA for review.	

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	M) Cooperation between the applicant, the applicant's traffic engineer, and County staff is strongly encouraged throughout the TIA process. The applicant or applicant's traffic engineer should not hesitate to contact County staff if any uncertainties should arise.	
3.8.3 Additional Requirements for Transportation Impact Analysis (TIA)	Policy and Procedure Marion County Department of Public Works Transportation Impact Analysis (TIA) Requirements Additional Study Requirements The basic TIA report requirements are listed in the previous section. Additional information and analysis will be necessary to properly analyze many development scenarios, and the Transportation Impact Analysis shall include a complete analysis of the existing conditions and the proposed development. The applicant and/or the traffic engineer can and should submit any additional information that may be helpful to County staff in understanding the proposed development and/or the traffic that it would generate. County staff may require additional study beyond the scope of the original TIA, especially in cases where additional transportation system concerns arise either as part of the traffic analysis process, as part of the approval process, or from the general public. County staff may also, at their discretion, choose to waive certain report requirements where they deem such analysis to be unnecessary. Please do not hesitate to contact County staff if there is any question as to whether or not certain analysis information should be included in the TIA.	Transportation Impact Analysis Scenarios In addition to requirements above, a TIA shall provide PM peak hour intersection analyses for the accesses and study intersections for the following analysis scenarios. A. Existing Conditions, based on existing turning movement counts; B. Background Conditions, without the proposed project during the year in which the development is proposed to be constructed and occupied (including approved, but not yet built developments as identified by the County Engineer); C. Total Traffic Conditions, including the proposed project during the year in which the development is proposed to be constructed and occupied (background conditions plus site generated traffic); and D. Findings and Conclusions, including a recommendation and evaluation of potential mitigation for off-site impacts due to the proposed project. Analysis of proposed developments and land use actions may also require AM and/or Saturday midday conditions. The evaluation of the required peak periods shall be confirmed through the written scoping process. Zone Changes and/or Comprehensive Plan Amendments will also require an analysis of traffic conditions in a twenty-year horizon. In addition, the following shall be provided. A. Safety analysis of the site accesses and study intersections based on the most recent five years of crash history available from ODOT; B. When needed, warrant analysis for traffic control devices; C. Evaluation of impacts on bicycle, pedestrian, and transit access, circulation, and facilities; and a response to any previously identified comments by others. Intersection Turning Movement Count Data Turning movement counts to be used in the intersection analyses should be based upon counts collected within twenty-four months of the completed land use application. Turning movement counts shall include vehicular (truck vs. non-truck). Bicycle and pedestrian volumes may be required based on location and use; requirements will be identified in written scope. Growth Rates For short-term analysis of five years or less, linear growth rates shall not be less than 2% per year unless verifiable evidence is submitted or known which indicates that the local growth rate is less than 2% per year. For long-term analysis of six years or more, growth rates shall be

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		applied from the current version of ODOT's Analysis and Procedures Manual (APM). In-process traffic, or developments that have been approved and have current land use approval yet are not occupied or fully built-out, shall be included in addition to growth projections. That information may be omitted for zone changes and comprehensive plan amendments. Requirements and methodology will be identified in written scope. Intersection Operational Analyses All TIAs shall include intersection operational analyses performed using the most recent version of the Highway Capacity Manual (HCM) methodologies. The minimum operational standards for use on the County's system are: A. Two-Way Stop Controlled (TWSC) Intersections – the critical approach should operate at Level of Service (LOS) "E" or better; LOS "F" is permissible if the critical approach operates under capacity and a traffic signal is not warranted at the intersection; B. All-Way Stop Controlled (AWSC) Intersections – LOS "E" shall be maintained; C. Signalized Intersections – LOS "E" shall be maintained; D. Roundabouts – the critical approach shall operate with a volume-to-capacity ratio of 0.85 or less; E. For intersections under ODOT jurisdiction, the applicable ODOT mobility targets apply; and F. For intersections within a city's UGB, the city's LOS standards apply, unless determined otherwise by the County Engineer. Queue Analysis All TIAs shall provide a queuing analysis that evaluates the impact of queues on public roadways. Traffic backing onto public roadways could create safety concerns. Turn Lane Warrants It may be required for TIAs to provide right-turn and left-turn lane warrants, as identified in the written scope. When required, applicants shall conduct turn lane warrants using the current version of ODOT's APM. Applicable Mitigation Measures In approving an action that requires a TIA, the County may condition that approval on identified mitigation measures needed to protect the safety of the transportation system from potentially adverse impacts of the proposal. Measures may include but are not limited to: • Multimodal facility changes; • Intersection safety mitigation measures; • Intersection geometric and traffic control changes; and/or • Proportionate share contributions toward a previously identified deficiency. Proportionate Share Contributions

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		All proportionate share contributions shall be based on the development's share of future growth in volumes at the intersection (i.e., future volumes less existing volumes). Mitigation measures and proportionate share contributions must be roughly proportional to the identified impacts. Refer to the County RTSP for additional information.
3.9 Checklists	1990 Standards – Section VII Check list for Subdivision Review On the following pages appear check lists to be used in the various stages of subdivision review listed below: A. Preliminary Plat B. Engineering Plans C. Final Plat (hard copy) 2021 ADA Standards Section IV Curb Ramp Design Standards E. ADA Curb Ramp Design Checklist 2022 SWQT Standards Table 6-1 Checklist of Calculations to be included in the Stormwater Management Report Section 8.3 EPSC [Erosion Prevention and Sedimentation Control] Plan Checklist Appendix A – Site Assessment Checklist	The following plan development and submittal checklists can support project teams in verifying the required information is included for each project type. Checklists can be found in Appendix E. • Subdivision Plan Checklist • Survey Checklist • Utility Checklist • Plans Development Checklist • Horizontal and Vertical Clearance Checks • ADA Curb Ramp Design Checklist(s) • Erosion Prevention and Sedimentation Control Checklist • Stormwater Quality Treatment Submittal Checklist • Other
3.10 References	None	None.