

CITY OF COLUMBUS
DEPARTMENT OF PUBLIC SERVICE
DIVISION OF DESIGN AND CONSTRUCTION
GENERAL DESIGN REQUIREMENTS–CAPITAL IMPROVEMENT PROJECTS (CIP)

Section 1 - Introduction and Standards

- 1.1 The project will be designed using current City of Columbus specifications and standards (and Ohio Department of Transportation (ODOT) standards/specifications) as specified in the project scope of services. If City or ODOT standards are not applicable to a design feature; then the project will default to AASHTO design requirements, or as directed by the City Engineer.

- 1.2 City of Columbus Construction and Material Specifications (CMSC) 2012 or latest edition, including latest updates to Supplemental Specification 1100 shall govern, including but not limited to the following City (and other) documents:
 - 1.2.1 Current Public Service Department, Division of Design & Construction Standard Drawings.
 - 1.2.2 City of Columbus Supplemental Specifications as applicable.
 - 1.2.3 Non-Residential or Residential Pavement Design Policy as applicable.
 - 1.2.4 City of Columbus curb ramp standards.
 - 1.2.5 AASHTO Bikeway design guidelines.
 - 1.2.6 Maintenance of Traffic shall follow the Ohio Manual of Uniform Traffic Control Devices and City of Columbus standards.
 - 1.2.7 City of Columbus Traffic Signal Design Manual.
 - 1.2.8 City of Columbus Stormwater Drainage Manual latest edition.
 - 1.2.9 States Standards (GLUMRB) as required.
 - 1.2.10 DOP Street Lighting Specifications (MIS) as required.
 - 1.2.11 Wheelchair Ramp Requirements Rules and Regulations.

- 1.3 The design development of this project shall be performed in accordance with but not limited to the Specifications, Standards, Manuals, and Guidelines cited within this document. The Consultant shall perform all work required by said document unless a specific exception or direction is provided by the City’s Design Project Manager (DPM). Absence of a specific reference to complete any required design element of work contained within the Scope of Services shall not relieve the Consultant of responsibility to perform the work. The development of plans adhering to these requirements shall be based on the most current version of each document at the date of the Design Kick-off Meeting.

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Minor changes or revisions to said documents should be routinely incorporated into the work. The Consultant shall also be responsible to revise the plans to conform to the most recent version of the design documents as required. The Consultant shall notify the DPM in writing of any subsequent changes in design standards or other documents that would substantially impact design work already performed or significantly change the project including design services, construction costs, right-of-way (R/W) impacts or environmental concerns. Any substantial changes in design policy or plan preparation requirements will be discussed on a case by case basis.

The various specifications and guideline documents herein are available for download from the Department of Public Service and the Department of Utilities at the City’s websites below with the exception of AASHTO and OMUTCD documents:

<http://columbus.gov/Department of Public Service/Design and Construction/Design Resources>

<http://columbus.gov/Department of Public Utilities/Forms and Publications>

Section 2 - Surveying Requirements

2.1 General Surveying Requirements

2.1.1 The Consultant shall obtain a permit from the City of Columbus for their Surveyor to work in the right-of-way. There is no charge for this permit if they advise the Permit Section at the time of application that their work relates to a public improvement project for the Division of Design and Construction. There will be an assessment for any loss of meter revenue. Applications for this permit are available from the Division of Planning and Operations located on the first floor of 50 W. Gay Street, or on line utilizing the link provided in Section 1.

This permit serves to provide the City of Columbus with knowledge of others working within its rights-of-way and is required in accordance with Chapter 902 and 903 of Columbus City Code.

2.1.2 A copy of all survey related notes and files for the project shall be provided to the City upon completion of the project or upon request.

2.1.3 The Consultant’s plans shall be developed based upon the use of established centerline stationing from previous construction projects whenever possible.

2.1.4 Roadway cross-sections shall be provided within the project plans at a minimum of every fifty (50) feet, and at significant grade changes, driveways, lead walks, and/or other features requiring clarification for construction purposes.

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- 2.1.5 Cross-sections shall extend a minimum of ten (10) feet beyond the existing or proposed right-of-way limits, easements, or proposed construction limits, whichever is greater. Cross-sections may be required beyond the 10foot minimum when topographical features or other existing conditions appear to impact the project.
- 2.1.6 Pavement elevation details for construction purposes shall also be required within the project plans on radius returns and curb ramp details.

2.2 Existing Vertical Datum

- 2.2.1 The 1988 North American Vertical Datum (NAVD) shall be used on all public projects. Any alternative datum must be approved in writing and in advance by the City Engineer.
- 2.2.2 All project elevations shall be based upon a source bench mark of public record (2 are preferred), a minimum of 3 temporary benchmarks (TBM) to be set on site with at least one outside the project limits.
- 2.2.3 Temporary bench marks must be of third order or better, per the National Geodetic Survey Standards.
- 2.2.4 The datum in use shall be noted upon the plans.

2.3 Horizontal Control

- 2.3.1 The Horizontal Datum should be based on the National Spatial Reference System (NSRS) 2007 and further reference made to the Ohio State Plane Coordinate System, South Zone.

2.4 Existing Centerline Monumentation

- 2.4.1 The Consultant shall thoroughly research State, County and/or City records, as well as perform a field inventory of the surrounding roadways, for the existence of centerline monumentation within, and in proximity to, the proposed project limits. The Consultant shall advise the City of Columbus and the County Engineer's Office of any existing centerline monumentation, or other, belonging to the County that will be removed or disturbed by construction operations. Their plans shall then be developed in a manner satisfying the County Engineer's Office as to disposition and/or method of replacement for said monumentation. Notes shall be included in the plans for the Contractor to notify the County Engineer's Office two (2) weeks prior to any construction activity that removes said monumentation.

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2.4.2 All existing centerline monumentation shall be shown and thoroughly described on the Centerline Survey Plat for this project. This description shall include information as to the final disposition of these monuments at the conclusion of construction activities. Centerline monumentation shall also be shown and described within the project’s plan and profile sheets. The Centerline Survey Plat shall be signed, dated and sealed by an Ohio Certified Land Surveyor.

2.5 Existing Property Corners and Right-Of-Way Angle Points

2.5.1 The Consultant shall be responsible for establishing all existing right-of-way lines and shall reflect and describe all monumentation, within their plans, that are found within their project limits. The size, condition, and precise location of this monumentation shall be shown and described, including a description of the identification cap/disk when in place within the plans.

2.5.2 In addition to field surveying operations, the Consultant shall utilize existing plans such as subdivision plats, Centerline of Survey plats, right-of-way plans, City and County right-of-way records, street plans, sewer (sanitary and storm), water, power ,and other utility plans obtained by the Consultant from the City, State, County or other governmental agency for the purpose of assisting in the establishment of existing right-of-way limits.

2.5.3 Existing monumentation, easements and other pertinent right-of-way features and issues shall be fully investigated and represented on the plans.

2.6 Horizontal And Vertical Reference Monumentation

2.6.1 The Consultant shall be responsible for placing adequate horizontal and vertical reference monumentation to accommodate all design and construction related activities. Said reference monumentation shall be placed in a location and fashion conducive to its long term existence throughout the project’s life cycle, including construction and final grading.

2.6.2 All reference monumentation shall be placed within existing public rights-of-way whenever possible. Should the need arise to place a temporary vertical or horizontal reference monument on private property an agreement between the Consultant and the Property Owner shall be required. This agreement shall state that a temporary reference monument (including description of same) has been set for the purpose of constructing (name of project), for a duration of (years, months, days), dated and signed by the Property Owner and the Consultant's Representative. A copy of this agreement shall then be provided to the Property Owner and the City of Columbus. It shall be the Consultant’s responsibility to arrange said agreement.

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2.6.3 The Consultant shall provide Northing and Easting coordinates of each horizontal and vertical monument placed, or utilized, by the Consultant to establish the centerline of survey, or temporary vertical control, for the project. A minimum of three horizontal monuments and three vertical monuments are required per project, with at least two of the horizontal monuments located outside the limits of construction. These control points shall be in place and visible in the field at the time the plans are signed by the City of Columbus.

2.7 Proposed Centerline Monuments

2.7.1 The project's plans shall specify the placement of a 1-inch steel rod, 30 inches in length, at the centerline intersection of all public roadways within the project limits as well as all centerline points of tangency (P.T.), curvature (P.C.), etc. Notes specifying the following shall be included within your plans.

2.7.2 When applicable, a note in the project plans shall direct the Contractor that: Following the placement of final roadway pavement the Contractor shall advise the City of Columbus project inspection personnel to contact the Consultant's Registered Surveyor to arrange for the location of all permanent centerline right-of-way monumentation to be staked in the field for placement by the Contractor. Immediately following these locations being marked in the field, the Contractor shall utilize a drill, or other methodology approved by the City, to create a 1-inch diameter hole through the pavement to a depth of 30 inches. Within this hole a 1-inch diameter steel rod, 30 inches in length, shall be driven ¼ inch below final pavement grade. The Contractor shall fill any voids between this steel rod and the surrounding pavement to the City's satisfaction.

2.7.3 When applicable, a note in the project plans shall direct the Contractor that: Following the placement of these centerline monuments, the Contractor shall once again advise the City of Columbus project inspection personnel to contact the Consultant's Registered Surveyor to advise them that centerline monumentation has been placed and may now be verified as to its accuracy. Following the Consultant's Surveyor verifying proper monumentation placement the Consultants Surveyor shall provide the City Engineer or his/her representative with a letter certifying that all monuments were set in accordance with the project plans **Prior to the final acceptance of the CIP project.**

2.7.4 Should the need arise to relocate or non-perform centerline monument placement due to unforeseen circumstances, the Consultant shall advise the City of the necessity for change and obtain the City's approval prior to monument placement. The Consultant shall then file a revised Centerline Survey Plat with the City reflecting all changes.

2.8 Staking Of Proposed Right-Of-Way Acquisitions Required

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- 2.8.1 Property/Right-Of-Way Monumentation – Following the City’s approval of the project’s final Right-of-Way Plans and acquisition of the proposed right-of-way the Consultant shall place monumentation at all new property corners and angle points in property and/or right-of-way lines created as a result of fee title right-of-way acquisitions for the project. Said monumentation shall be placed in conformance with the requirements outlined within Chapter 4733-37 of Ohio Administrative Code.
- 2.8.2 Where said monumentation shall be subject to disruption or destruction due to proposed construction operations, said monumentation may be temporarily placed in the form of hub and tack and later replaced by standard monumentation immediately following the completion of all construction operations. It shall be the Consultant’s responsibility to replace all property corner/right-of-way monumentation that fall within the projects construction limits that are disrupted or destroyed by construction operations. Plan notes shall be included within the project’s plans advising as to these requirements as well as requiring due notification of the Consultant once construction operations have been completed.
- 2.8.3 The Consultant’s plans shall also advise the project Contractor that monumentation has been placed at these locations and that it is the Contractor’s responsibility to see that all monumentation, existing or newly placed, which fall outside the construction limits remain undisturbed, or it shall be the Contractor’s responsibility to arrange for their replacement. Said replacement shall be at the Contractor’s sole expense.

2.9 Centerline Survey Plat

- 2.9.1 On projects requiring the acquisition of additional right-of-way the Consultant shall prepare and submit a Centerline of Survey Plat. This Centerline Survey Plat shall be submitted in accordance with the procedures and schedule outlined below.

2.10 The Identification and Location of Basements/Vaults Extending into the Public Right-of-Way

- 2.10.1 Historically, the City of Columbus has allowed Property Owners with buildings on or near the public right-of-way to extend their basements/vaults into the public right-of-way. However, the location records associated with that permit process no longer exist. Consequently, the City has no record of where these basements/vaults do, and do not, exist. Therefore, it shall be the Consultant’s responsibility to personally verify the existence of basements/vaults within the public right-of-way, within the limits of the project.

The Consultant shall not accept the word of anyone other than the Property Owner, or their authorized representative as to the non-existence of a

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basement/vault. Where this confirmation cannot be made, building basement access should be sought for the Consultant's verification and survey purposes. Where access is denied, immediate written notification shall be provided to the DPM. A notice from the City Attorney's Office advising the Property Owner of the City's right to inspect encroaching basements/vaults, and of the Property Owner's responsibilities, shall be issued by the City. All contact with a Property Owner, and/or tenants, shall be documented within project files.

Once the Consultant has determined that a conflict exists between the proposed design and an existing basement/vault within the public right-of-way, the Consultant shall provide immediate written notice to the DPM. The DPM shall then request the City Attorney's Office to prepare and issue legal notice to the Property Owner advising them of their responsibility to resolve the conflict and of the City's willingness to meet with the Property Owner in order to begin the process of determining a solution acceptable to the City. When a solution has been reached between the City and the Property Owner, the design Consultant shall implement the proposed design resolution into the project plans.

Section 3 - Right-of-Way Plans, Legal Descriptions, and Survey Plats

The City of Columbus seeks to avoid right-of-way acquisition whenever possible. The Consultant should use creative solutions to avoid and/or minimize right-of-way acquisition whenever other more economical solutions might be utilized. Where right-of-way acquisition cannot be avoided, the Consultant shall prepare and provide the City with right-of-way plans, legal descriptions, and survey plats in accordance with Section 3 of this document. Right-of-way plans must be prepared and submitted in a form consistent with City standards; coordinate with Division of Design and Construction Right-of-Way Coordinator to determine the type of proposed right-of-way plans and acquisitions (typically provided at the design kick-off meeting). Present Road Occupies (PRO) shall be included when acquisition of a parcel is required within the project limits. The following requirements shall apply:

- 3.1 The Consultant shall be responsible for the preparation and submission of a right-of-way plan prepared in conformance with the right-of-way plans section of the Ohio Department of Transportation (ODOT) Real Estate Policies and Procedures Manual, current edition, and as specified herein.
- 3.2 Right-of-way plans shall consist of the following sheets, unless otherwise authorized by the Division of Design and Construction Right-of-Way Coordinator:
 - Right-of-Way Title Sheet, signed, dated, and sealed by an Ohio Certified Land Surveyor.
 - Property Map Sheet(s)
 - Centerline Survey Plat Sheet(s)
 - Right-of-Way Summary Sheet(s)
 - Detailed Right-of-Way Plan Sheet(s)

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- ODOT’s reference R/W Plan Manual (3108.5)
 - Right-of-Way Topography Sheet(s) (3108.6)
 - Right-of-Way Boundary Sheet(s) (3108.7)
 - Railroad Plat Sheet(s) (3108.8)
 - Utility Location and Identification Sheet(s) - (required when the quantity and/or complexity of existing utility locations and/or ownership warrants). The Utility Location and Identification Sheet(s) may be found on line utilizing the web site located in Section 1 herein.
- 3.3 Existing rights-of-way and proposed right-of-way acquisition limits shall be shown and labeled consistently throughout the plan on all project plan and profile sheets, cross sections, details, etc. (e.g. Ex. R/W and easements, Prop. R/W, T, S, etc.) with all plan submissions. All proposed construction limits shall fall within the boundaries formed by these features.
- 3.4 Right-of-way plans shall reference the City of Columbus, Ohio or ODOT as the agency by which the project will be administered.
- 3.5 All existing and proposed property boundary survey monumentation, within the limits of the project, shall be clearly delineated as to location (i.e. station and offset from Centerline of Survey), character, and composition, upon the detail and centerline right-of-way plan sheets for this project.
- 3.6 Right-of-way encroachments determined to exist within the project limits shall be clearly identified and delineated as to their location, character and form, and disposition, upon the project’s detailed right-of-way plan sheets and right-of-way summary. The City will send letters to the affected Property Owners notifying them to remove all encroachments prior to the start of construction.
- 3.7 All right-of-way plan submissions shall include the concurrent submission of digital copies of those plans in accordance with the Submission of Electronic Files Section 9 of this document.
- 3.8 Preliminary Right-of-Way Plan Review Submission: The preliminary right-of-way plans shall be submitted to the Right-of-Way Coordinator within 30 days following the review of Stage 1 and after the Consultant has determined preliminary project grading and drainage limits. This submission shall be clearly labeled as Preliminary Right-of-Way with a right-of-way check off list. See CIP Right-of-Way Plan Development at:
- <http://columbus.gov/Department of Public Service/Design and Construction/Design Resources>
- 3.9 Final Right-of-Way Plan Review Submission: The final right-of-way plans shall be submitted to the Right-of-Way Coordinator within 14 days following the resolution of

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all Stage 2 review comments that have any bearing upon their accurate completion. This submission shall be clearly labeled as Final Right-of-Way.

Following the City’s review and comment of the final Right-of-Way Plan, if a compliance review is determined necessary, the City will advise the Consultant to make this submission. The Consultant shall then resolve all comments and submit a Right-of-Way Compliance Submission.

- 3.10 Right-of-Way Plan Submission: Both the Right-of-Way Title Sheet and Centerline Survey Plat shall be signed and stamped by a Professional Surveyor registered to perform surveying within the State of Ohio.
- 3.11 Legal Descriptions and Exhibits: The Consultant shall be responsible for the preparation and submission of all signed and stamped legal descriptions and exhibits. A signed and stamped legal description shall also be required for all proposed easement and/or work agreement acquisitions. All legal descriptions and exhibits shall be prepared in accordance with the appropriate sections of Ohio Administrative Code. All legal descriptions shall have a precision reading of 10,000 or greater. These documents shall be pre-approved by the County Engineer’s Office for each proposed fee title transfer (e.g. Warranty Deed (WD), Fee Simple with Limitation of Access (WL), etc.). Three (3) original documents must be submitted to the County for pre-approval. In addition the Consultant shall provide a CD or email (if requested by the City of Columbus) containing all legal descriptions in PDF and Microsoft Word format.
- 3.12 All legal descriptions shall be prepared in a metes and bounds format with station and offset references to the centerline of survey for all call out points and must be prepared on legal size paper (8 ½” X 14”).
- 3.13 Right-of-Way Plan Revisions: All revisions shall be submitted in the same format as described in this section, immediately after the need for revision is determined and as directed by the DPM. All revisions shall be submitted to the Right-of-Way Coordinator; revision block must include a description of the revision and date revised. Should a revision require a change in acquisition limits, revised legal descriptions and exhibits shall be required at that time. The DPM shall determine if the revision is due to an error by the Consultant or by a change prompted by the acquisition process, prior to directing the Consultant to make the change. If the revision is due to an error by the Consultant, the Consultant shall immediately make the change without compensation. If the change is prompted by the acquisition process, the DPM will direct the Consultant to make the necessary change as well as authorize any agreeable compensation.
- 3.14 Mylar original Title Sheet with Surveyor’s stamp and signature of the approved final Right-of-Way plans shall be submitted with the signature tracings following the resolution of all comments from previous right-of-way reviews, the resolution of right-

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of-way related decisions made as result of design comments received through the review process, and any revisions substantiated during the acquisition phase.

- 3.15 The City will perform all right-of-way acquisition services for the project unless noted otherwise.
- 3.16 The Consultant shall file copies of the projects right-of-way plans for approval by the County Engineer’s Office prior to right-of-way acquisition.
- 3.17 The Consultant shall file the Right-of-Way title sheet and/or Centerline of Survey Plats with the County Recorder’s Office prior to the commencement of construction activities.
- 3.18 Staking of Proposed R/W Areas “If Authorized”: Prior to the commencement of real estate appraisal operations, the Consultant may be requested to stake all proposed right-of-way acquisitions, including easement and/or work agreement areas. Within the Consultant’s design proposal submission, include a fee for providing these services as an “If Authorized” task” The Consultant shall then be compensated for these services if requested and only when authorized by the DPM to do so. This service shall include the placement of wooden stakes (flagged lathe), or other temporary delineation, at all proposed Right-of-Way, easement, and work agreement angle points as directed by the DPM.

Section 4 - Utilities

- 4.1 The City of Columbus seeks to avoid utility relocation whenever possible. The Consultant should use creative solutions to avoid and/or minimize utility relocations whenever other viable solutions may be utilized.
- 4.2 Utility coordination for Capital Improvement Project (CIP) plans shall be conducted in accordance with the Division of Design and Construction Utility Manual. This manual is located on the City of Columbus website under CIP Utility Coordination–Private Utilities at:

<http://columbus.gov/Department of Public Service/Design and Construction/Design Resources>
- 4.3 It should be understood that design for the relocation of City-owned utilities shall be included as part of the project including: waterlines, sanitary and storm sewers, traffic, communication, telecommunication, street light and electric facilities.
- 4.4 Design for private utility relocations must be started as soon as possible or avoided where possible to minimize delays and additional costs to the project. The Consultant shall coordinate with private utility companies in the identification and location of utility facilities and avoidance of conflicts with City facilities or elements of the

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project. Provide utility locations by field located markings and including same onto Stage 1 drawings.

- 4.5 Coordinate with all private utilities to communicate the scope and limits of the project and to determine the existence of facilities within the project limits.
- 4.6 Coordinate with the City’s Right-of-Way and Permits Supervisor to identify the existence of any Special right-of-way permittees that may have facilities or structures within the limits of the project. When applicable, show these facilities or structures in the project plans.
- 4.7 To obtain all infrastructure data for the City of Columbus Department of Public Service and the Department of Public Utilities, send all requests to dpsplanrequests@columbus.gov and DPU_GIS_MAPPING@COLUMBUS.GOV. Individuals calling into the Map Room to make data requests will be referred to request data via email and data requests will not be processed until an email is received. All requests should be in the following format (name, Consultant name, contact number, DPM, type of data being requested, and the summarized purpose of the data being requested.) The Consultant will need to attach an image to the email which clearly shows a bounding box of the geographical area that data is needed.
- 4.8 Consultant shall make sure the water and sewer record plan number is correctly labeled for the respective public utility on the plan/profile view of Stage 1 of the construction plans.

Section 5 - Maintenance of Traffic (MOT)

- 5.1 The Maintenance of Traffic (MOT) plan shall include detailed temporary traffic control drawings, notes, and phasing for all portions of the project. The plan shall also show existing location of right-of-way (as needed); curb lines and edge of pavement, curb cuts, sidewalks, shared-use paths, poles (as needed), traffic signals, traffic signs (ground mounted and overhead), pavement markings, etc. All existing items shall be shown by using dashed/lighter weight lines.
 - 5.1.1 A meeting between the Consultant and the appropriate Design and Construction Division personnel who will review the MOT plans will be held immediately after the Stage 1 plan review is complete. This meeting is to be requested through the DPM. At this time, the details of the MOT and Traffic Control Plan will be discussed. Design and Construction Division staff will provide relevant MOT standard drawings, notes, specifications, etc. at the time of this meeting. The Consultant is to prepare a meeting summary of their understanding of items discussed at this meeting and submit them to the DPM for review.
- 5.2 It is the responsibility of the Consultant to provide all existing traffic control items 200 feet beyond the first MOT traffic control device. Intersections shall be shown in full

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when work is performed within the right-of-way. Existing and proposed traffic control items to be shown shall include, but not be limited to, traffic control signs, signal heads (existing and proposed), shifted heads, pedestrian signal heads, signal poles (existing and temporary), signal spans and all over head signing, and other signal related items, as well as all pavement markings including lane width and lane use markings. The existing traffic control items shall be shown by using lighter weight or dashed lines while all proposed traffic control items shall be in bold.

- 5.3 All temporary traffic control devices shall be shown at appropriate locations on each plan sheet. Temporary traffic control signs shall be shown with design codes, size, and station number on each plan sheet. The use of a key-legend shall only be approved for signing detour routes on plan schematics. A legend may also be used to designate various channelizing devices and specified spacing of the devices.
- 5.4 If total closure (short term or long term) of the roadway and/or intersection is warranted, a complete detour plan shall be included for all users. The plan shall consist of a schematic of the street system, the surrounding and approaching detour route and the project area. Sign, barricades, Flashing Arrow Panels (FAP), Portable Changeable Message Signs (PCMS), etc. locations shall be identified by a ballooning-numbering system.
- 5.5 All signs, barricades, etc. shall be shown on a key-legend format corresponding to each balloon. The key-legend shall be on the same plan sheet as the schematic. All signs shall include legend, sizing, color, codes, etc. These Keys and or sign identification shall remain consistent throughout all pages of the MOT plans.
- 5.6 Signal detection shall be incorporated into the plans by use of existing detection or through the use of microwave, video, or other approved detection (design, notes, and installation shall be included).
- 5.7 Plans will include a temporary alternate ADA compliant pathway for maintaining pedestrian traffic. For any bikeway facilities leading into and out of the project limits, the Consultant needs to account for the maintenance of bikeway traffic and access to bicycle facilities.
- 5.8 Logical sequence of construction events, including the use of temporary items shall be included, as needed. Necessary quantities shall be accounted for due to these phases.
- 5.9 Access shall be maintained to all properties at all driveway entrances, including those drives scheduled for replacement, unless specific plan constraints restrict this requirement.
- 5.10 Consult the following Department of Public Service web site for MOT design specific requirements.

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<http://columbus.gov/Department of Public Service/Design and Construction/Design Resources>

- 5.11 Until said web site documents are available on line; design Consultant shall contact the DPM to set up a pre-design meeting for MOT design detail requirements.

Section 6 - Traffic Control (Signing and Pavement Marking)

- 6.1 Traffic Control (Signing and Pavement Markings) have a specific design requirements and are available on the Department of Public Service web site:

<http://columbus.gov/Department of Public Service/Design and Construction/Design Resources>

- 6.2 Until said web site documents are available on line; design Consultant shall contact the DPM to set up a pre-design meeting for Traffic Control and MOT design detail requirements.

Section 7 - Traffic Signals

- 7.1 Traffic Signals have specific design requirements and are available in the Traffic Signal Design Manual on the Department of Public Service web site:

<http://columbus.gov/Department of Public Service/Design and Construction/Design Resources>

Section 8 - Plan Format and Plan Requirements

- 8.1 Plan Format:

- 8.1.1 All plans must be submitted on 22 x 34 inch paper, with a minimum of 2 inches from left border and ½ inch from all other borders.

Plan & Profile are typically required at: 20 scale Horizontal & 5 scale Vertical. Downtown or dense urban areas may be 10 scale Horizontal at Consultant request with DPM approval; and/or, as directed by the DPM.

- 8.1.2 Plan Title: For the project, the Plan Title shall be the name of each STREET (on which improvement is proposed) and the limits of the improvement with reference by distance FROM/TO the R/W line of the nearest (public street) intersection. Describe the work limits from SOUTH-to-NORTH and from WEST-to-EAST. The directional relationship of the street should be abbreviated (e.g. E. Broad or N. High) unless the direction is part of the street name (e.g. North Broadway). Numeric street names are to be spelled out (e.g. 4th Street shall be as Fourth Street). Examples:

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- N. High Street FROM Broad Street TO Lane Ave. (work is on entire street or both sides).
- Indianola Ave. (west side) FROM 120'± south of E. North Broadway TO 375'± north of E. North Broadway.
- E. Broad Street (south side) FROM High Street TO 300'± east of Fourth Street.

8.1.3 Street Stationing: Station the centerline of each street. Each street is to have its own stationing. Stationing should progress up from SOUTH-to-NORTH and from WEST-to-EAST. Provide a “Basis of Stationing” statement explaining the origin and basis of stationing. Whenever possible, use established stationing from previous (project) plans and make reference to the plan number(s) in the statement. When establishing new stationing, set an even station at the centerline of the nearest street intersection and describe in the Basis of Stationing statement. When stationing is newly established, include in the statement that is being set for this project. Station equations or negative stationing on the plans will not be accepted. All E-Plan improvements shall be based on the roadway centerline stationing, including sidewalks, etc. unless alternative stationing is approved by the DPM.

8.1.4 Title Sheet is to be submitted on Mylar®, with the same plan requirements as in paragraph 8.1.1. Once the plan is approved for signature routing, a Mylar® original of the title sheet shall be produced with appropriate Engineers stamp/s and signature/s required (e.g., Civil, Structural, Traffic Signal, Electrical, etc.) and submitted for the Final Signature Stage along with one complete reduced set of plans. All Mylar® originals shall be laser printed on 4 mil Double Matte Engineering.

8.1.5 The Department of Public Service website has Sample Plan sheets for Capital Improvement Projects that shall be used as a format guide in developing plan sheets.

<http://columbus.gov/Department of Public Service/Design and Construction/Design Resources>

8.1.6 All plan sheets shall be clear and legible. Plans that are not legible may be rejected.

8.2 Plan Requirements:

The following plan requirements shall be considered a minimum standard. Some projects will not require all of these items. Any variations to these requirements shall be discussed with the DPM. Refer to City Department of Public Service

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website for Plan Requirements, Checklists and Sample Plan sheets for Capital Improvement Projects.

8.2.1 Preliminary Alignment Plan

Large scale (30 Scale unless directed otherwise) scroll plot of the project alignment. This plan should include the following, but not limited to: existing topographic information; proposed/existing roadway; curb; pavement markings; sidewalks; bike lanes, shared use paths; proposed/existing on street parking; existing COTA bus stops; proposed ADA ramp alignment or compliance of existing ramps; existing right-of-way; property lines; property ownership information; preliminary construction limits; (R/W impacts); stationing; associated labels and dimensions; other items as necessary to illustrate the project conceptual requirements and as identified by the DPM.

8.2.2 Stage 1 Plans (Minimum sheets required)

- Title Sheet.
- Schematic Plan.
- Typical Sections (including approved pavement design computations).
- Maintenance of Traffic (MOT), including pedestrian MOT (if not on the plan sheets, a separate narrative outlining an MOT concept and construction sequencing included with Stage 1 submittal).
- Plan and Profile Sheets (minimum scale: 1" = 20' horizontal and 1" = 5' vertical), including demonstration of a continuous compliant PAR.
- Pavement Marking & Signing.
- Traffic Signal Plan.
- Traffic Signal Interconnect Plan.
- Lighting & Power Plan.
- Structure Plan.
- Preliminary Storm Water Management Report (2-Copies, in accordance with the current edition of the City of Columbus Stormwater Drainage Manual **including conceptual Stormwater BMP's**).

8.2.3 Stage 2 Plans (Items in Stage 1 plus the following):

- General Notes including As-Per-Plan and Item Special notes.
- Maintenance of Traffic (MOT) Notes.
- General Summary (complete except for quantities).
- Storm Water Pollution Prevention Plan.
- Plan and Profile (complete except for quantities).
- Sub Summary Tables (complete except for quantities).
- Cross Sections (complete except for quantities).
- Detail Sheets (including but not limited to: Pavement Details, Intersection. Details, Curb Ramps, Drives, Walls, etc.).
- Storm Sewer Profiles and proposed storm-water BMP details.

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- Water Line Profiles.
- Traffic Signal Notes and Details (in accordance with the Traffic Signal Design Manual).
- Traffic Signal Interconnect Notes and Details.
- Structure Notes and Details.
- Lighting & Power Notes and Details.
- Landscaping Plan with Notes and Details.
- Storm Coordinate Data Table.
- Waterline Coordinate Data Table.
- Updated Stormwater Management Report.

NOTE: Quantities referenced in the Stage 2 and Stage 3 submittals is defined as the calculated values of the work items.

8.2.4 Stage 3 Plans (Items in Stage 1 & 2 plus the following):

- Calculations Sheet
- General Summary with quantities
- Sub Summary Tables with quantities

8.2.5 Final Signature Stage (Items in Stage 3 plus the following):

- Mylar Cover Sheet

Section 9 - Submittal Requirements

Prior to each plan submission, one set of reduced sized plans or electronic version shall be submitted to the DPM to review for submission requirements. If acceptable, the DPM will notify the Consultant that the submission of all review sets can be made. All plans will then be submitted to the Division of Design and Construction Plan Coordinator and shall be accompanied by a transmittal (copy to the DPM on company letterhead describing the contents of the submittal and contact information for the project. **Title Sheet of each submittal shall include stage of submittal and date submitted.** Standard review times for plan reviews are 30 calendar days.

Summary of submittal requirements:

- 9.1 Preliminary Alignment Plan (if required)
 - 9.1.1 4 Full size sets delivered to the DPM
 - 9.1.2 Other Items required by the DPM

- 9.2 Stage 1 Submittal
 - 9.2.1 8 Full size sets
 - 9.2.2 8 Half size sets
 - 9.2.3 Engineer's Estimate

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- 9.2.4 Utility Log
- 9.2.5 2 sets of any project related calculations
- 9.2.6 CD with PDF File of plans
- 9.2.7 Stormwater Management Report (2-Copies)

- 9.3 Stage 2 Submittal
 - 9.3.1 8 Full size sets
 - 9.3.2 8 Half Size sets
 - 9.3.3 Updated Engineer’s Estimate
 - 9.3.4 Updated Utility Log
 - 9.3.5 2 sets of any revised project related calculations (including Traffic Signal Design calculations)
 - 9.3.6 Return plan reviewer check prints
 - 9.3.7 CD with PDF File of plans
 - 9.3.8 Updated Stormwater Management Report (2-Copies)

- 9.4 Stage 3
 - 9.4.1 Number of Sets to be determined by plan review comments
 - 9.4.2 Updated Engineer’s Estimate
 - 9.4.3 Updated Utility Log
 - 9.4.4 2 sets of any revised project related calculations
 - 9.4.5 Return plan review check prints
 - 9.4.6 CD with PDF File of plans
 - 9.4.7 Updated Stormwater Management Report (2-Copies)

- 9.5 Final Signature Stage
 - 9.5.1 Stamped and signed Mylar Title Sheet
 - 9.5.2 1 Half Size set
 - 9.5.3 Final Engineer’s Estimate (Stamped and signed by Consultant)
 - 9.5.4 CD with .TIF Images, PDF File of plans, sub-summary and general summary tables in Excel format, and AutoCAD files

- 9.6 R/W Plan Preliminary Submittal (as approved by DPM)
 - 9.6.1 3 Half Size sets
 - 9.6.2 CD with PDF File of plans

- 9.7 R/W Plan Final Submittal
 - 9.7.1 1 Full Size set
 - 9.7.2 5 Half Size sets
 - 9.7.3 CD with PDF File of plans, PDF of each easement, Microsoft Word file of each easement
 - 9.7.4 Pre-approved legal description for WD(s) (as required)

- 9.8 Engineer’s Estimate Requirements

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All Engineer’s Estimates shall be submitted via City Template in Microsoft Excel spreadsheet format. The template is available on the Design and Construction/Design Resources web site referenced throughout this document. Engineer’s Estimates shall include all associated construction and inspection costs and appear in the precise same order as quantities shown in the general summary.

9.9 CD Requirements

Each CD shall be submitted in a transparent, hard plastic case that is labeled with the project name, E-Plan number, number of sheets, and date of submittal, Consultant name, Consultant contact name and type of submission.

9.10 TIF Image Requirements

A .TIF image of each sheet shall be submitted on a CD at Final Tracings. Images must be presented in landscape view. All TIF images must be submitted as 256 shades of grayscale at a resolution between 150 and 200 dots per inch (this allows for shading and for color CAD drawings being converted to grayscale imagery). Each plan sheet .TIF file shall include the project number and the sheet number as follows:

E0plan number_(three digit sheet number).tif

Examples:

E02639_001.tif

E02639_002.tif

E02639_003.tif, etc.

Note: The character after the “E” is a zero (0),
not the letter “O”

9.11 AutoCAD File Requirements

AutoCAD base files shall be submitted on a CD at Final Tracings. This includes existing and proposed project linework. Specific plan sheets may be requested by the City on a project by project basis and should only be included on the CD if determined by the DPM.

9.12 Disposition of Comments

Consultant shall dispose the proposed solution to all plan reviewer comments. This disposition can occur directly on the plan sheets (in a different color than the plan reviewer comments) or by letter. Plans shall not be resubmitted until ALL plan review comments have been addressed.

9.13 All plans submittals must be accompanied by back-check prints and disposition of comments prior to starting any subsequent review. Failure to produce these prints will delay the review process, and the Consultant will be expected to make up any lost time in the schedule.

Section 10 – Task List, Schedule, Meetings and Communication

10.1 Schedule

The Consultant shall develop and maintain a computer generated Critical Path Schedule indicating all major milestones and task activities (utilizing the Department of Public

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Service schedule Template located on the Design and Construction\Design Resources web site as referenced throughout this document) with respective time established for each task from the final project scope task list including 30-Day City review times. Microsoft Project software or approved equal shall be used. The project schedule shall be submitted and approved by the DPM. The DPM must be promptly made aware of any deviations from the original schedule. Any changes to proposed submittal dates must be requested in writing to the DPM and approved by the City.

It should be understood that after the design fee has been established, utilizing the Design Task List specific to the “Project”, it is expected that the detailed design schedule milestones will be derived from the project specific Design Task List. Additionally, some schedule details may be expanded under certain schedule milestones as required specific to the project on a project by project basis.

10.2 Meetings

The Consultant shall prepare a meeting summary for all meetings as scoped in the design contract documents. The meeting summary shall be sent to the DPM no later than 5 business days after the meeting.

The Consultant may request additional meetings with various City departments through the DPM on an as needed basis. Meetings requested by the Consultant that are not part of the design scope shall be considered incidental to the overall design fee.

10.3 Communication

Consultant’s communications and correspondence (letters, emails, transmittals, etc.) related to the project shall, as a minimum, reference the E-Plan number (XXXX-E) and Project Name in the subject title. If an E-Plan number is not yet assigned, then the City 6+6 Project Number shall be used.

Section 11 - Additional Services Task List (If Authorized)

11.1 Contract Documents

11.1.1 The City will prepare standard contract documents for project bidding. The Consultant may be required, if authorized, to prepare any special provisions and supplemental specifications that must accompany the project Construction Contract Documents.

11.2 ESA I

11.2.1 ODOT Environmental Site Assessment Guidelines shall govern.

11.2.2 Consultant produced reports shall include:

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- Executive Summary
- Introduction
- Geography/Geology for the Project Study Area
- Information for Each Site History
- Regulatory Records Review
- Interviews
- Parcel Reconnaissance
- Proposed Right-of-Way and Construction Activities
- Conclusions
 - ✓ Site Requiring Phase II ESA (Major Projects)
 - ✓ Site Specific Phase II ESA Recommendations (Minor Projects)
- Appendices
 - ✓ Project location maps (including topographic and county maps)
 - ✓ Aerial photographs
 - ✓ Fire insurance maps
 - ✓ Directories
 - ✓ Regulatory file review information
 - ✓ Parcel diagrams
 - ✓ Proposed boring/MW location diagram (Minor Projects only)
 - ✓ Photographs
 - ✓ Preliminary project plan sheets

11.3 ESA II

11.3.1 ODOT Environmental Site Assessment Guidelines shall govern.

11.3.2 Reporting Requirements

- Introduction
- Field Activities/Sampling Procedures
- Sampling Method
- Field Activities/Sample Section Method Analytical Methods
- Quality Assurance/Quality Control
- Geophysical Survey Discussion (if applicable)
- Parcel Diagrams
- Project Management Plan

11.4 Right-of-Way modifications and color coded plans

11.4.1 Consultant may be requested to make modifications to the final right-of-way plans determined necessary by the City of Columbus.

11.4.2 Consultant may be requested to provide color coded final right-of-way plans. Color coding shall follow the City's color system found on the City website.

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11.5 As-Built drawings

11.5.1 Consultant shall use red line drawings and other construction inspection documents prepared by the City of Columbus to update AutoCAD plans to document the as-built conditions.

11.5.2 Final submission shall include digital copies of those plans in accordance with the Submission of Electronic Files section of this document and shall include all AutoCAD files.

11.6 Update to current CMSC

11.6.1 Consultant shall be responsible for preparation of a red lined drawing showing changes required to the title sheet.

11.6.2 Consultant shall verify any changes to the general notes.

11.6.3 Consultant shall verify any changes to item numbers, item descriptions and special provisions.

11.6.4 Consultant shall verify any changes required to the typical sections.

11.6.5 Consultant shall verify any changes to the plans to change in item numbers and descriptions.

11.7 Contingency for private Property Owner site changes

11.7.1 Consultant shall review plans and make necessary changes to the right-of-way due to property transfers or property site use changes.

11.7.2 Consultants shall be responsible for all research to determine the current Property Owners.

11.8 On-Call Engineering services during construction

11.8.1 Consultant shall be available to attend pre-bid meeting and answer pre-bid questions.

11.8.2 Consultant shall attend the pre-construction meeting.

11.8.3 Consultant shall be available to answer Request for Information during construction.

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11.8.4 Consultant shall be available to attend construction progress meetings on an as needed basis.

11.8.5 Consultant shall be available to review and approve shop drawings on an as needed basis. Shop drawing review shall be a maximum of 5 working days from date of receipt or as directed by the DPM.