

WAKE FOREST EXISTING MANUAL OF SPECIFICATIONS, STANDARDS & DESIGN (MSSD) ANALYSIS AND PRELIMINARY RECOMMENDATIONS

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SENT VIA EMAIL

To: Town of Wake Forest
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Re Project: Wake Forest UDO and MSSD Comprehensive Update
Step 5, Part 3: MSSD Comprehensive Update and Reorganization

MSSD Content Review

Through a preliminary review of the information contained within the current MSSD, the following summary memo discusses the purpose of the MSSD, identifies if it is currently fulfilling that purpose, and makes preliminary recommendations for future revisions and/or additions. This memo is meant to capture our initial, first draft comments related to the review of the Town of Wake Forest's MSSD document. Our initial review and the creation of this memo constitutes the first step in the anticipated coordination between Town staff and Toole Design as we proceed with creating a more user friendly and more effective MSSD document that is coordinated with the anticipated modifications to the Unified Development Ordinance (UDO). Ultimately, the desire is to create a document that provides improved guidance to Town staff, contractors, the public, and other users who require information from the document. While there may be a variety of MSSD users, it is important to make access to information convenient while streamlining content related to policies and design.

Purpose of the MSSD

High Level Overview

The MSSD is a technical document that elaborates on pertinent design and construction information from the Town's UDO and Comprehensive Transportation Plan to elaborate the further technical details necessary to ensure compliance with the Town's development requirements. At the same time, being a manual rather than an ordinance, the MSSD offers flexibility to respond to emerging practices and unique circumstances. The MSSD document contains the various areas of design and construction guidance logically separated into individual chapters that include specifications, standards, and design details pertinent to each specific chapter. A successful MSSD needs to document relevant guidance in conjunction with the appropriate contents from the Town's UDO

and Comprehensive Transportation Plan. Streamlining information will be paramount along with removing redundant text and content. The document ultimately needs to provide an easily accessible, usable, and effective online guide for Town staff, contractors, and a variety of others who need to access specific design and construction guidelines within the document. A MSSD document needs to represent current practices as well as provide clear details, relevant standards, and necessary design content. The user should be able to quickly navigate the online format to find specific standards and design details related to the work they are performing.

Format and Content

Chapters within the MSSD need to be logically organized and need to include references to the pertinent sections within the UDO. Comprehensive and clear design details should be available in the future update related to each Chapter. The online format of the MSSD should be organized in a way that allows simple access and clear navigation for both regular users and users that may be unfamiliar with the document contents. There should be an easy process for navigating back and forth between the table of contents and the relevant chapters and design details as well as the ability to easily search the entirety of the MSSD contents. Clear instructions on the proper use, organization, and navigation of the MSSD should be readily available at the beginning of the document. The MSSD needs to be a document that prioritizes design details and uses text to support the visual content. Additionally, the contents should be organized in a way that provides an easily accessible and usable guide—removing unnecessary text and content—for Town staff, contractors, the public, and other users who access the document. Chapters should be logically organized, specifications should be complete, and details should be clear and of a consistent format style.

Status of Fulfilling the MSSD Purpose

High Level Overview

The current version of the MSSD contains many details and specifications that work in conjunction with the UDO and in most instances, it provides the additional detail needed to implement the UDO through construction. Though the existing MSSD seems to fulfill its purpose through the presence of useful construction information and its attempt to further support the UDO, the format of the online document does not fulfill the need of a document that is simple, easy to access, and clear to navigate. The online version of the MSSD document allows some navigation but is limited by the format. The current online format of the MSSD functions more as an uploaded pdf image than an interactive website. It does not appear that the online format of the MSSD meets the demands of a growing town and is not presented in an organized structure which could facilitate the necessary, periodic updates.

Format and Content

There is no easy way to efficiently search or jump through chapters and subsections when looking for specific information. There is not a way to download the entire MSSD document as a pdf, which would make it easier to scan the whole document looking for a specific, keyed-in search word. Design details are not downloadable as a pdf, dgn, or dsn file. The Table of Contents contains links to navigate to chapter headings, but not the associated subsections. The current chapters of the MSSD are broken into logical subject matter, but no reference or link is included to the relevant section of the governing UDO. The list of design content included on the website is not complete and is missing language representing all the subject matters. For example, there are not specifications included for Landscape Design and Installation. The table of contents references a Chapter 9 – Standard Specifications & Details, but that information is placed outside of the Chapter organization. The design detail graphics are often over-simplified with not enough information to ensure quality construction. There are also sections of content containing outdated information along with missing details and conflicting information. All content will be evaluated and updated per best practices.

Preliminary Recommendations by Existing Chapter (High Level Overview, Format, & Content)

Overall Document Comments

- The future MSSD document needs to be presented in an online format that is complete and easily navigated. The content needs to be current, and formatting of the details should be consistent.
- The current online MSSD document appears to be based on a word document format, including Table of Contents, page numbers, etc. Instead of a pdf version with embedded links driven by the Table of Contents. Consider creating either an online flipbook or a web-based version of the document, both with embedded links to chapters – subchapters, details, etc.
- New design details should be developed based upon best practice, UDO updates, and other plan initiatives (e.g., green infrastructure, low impact development, transit, etc.)
- The MSSD will be detailed focused, with the updated details guiding the standards.
- There should be an option to download the contents of the MSSD as a PDF, all in one document.
- Document needs to be easily navigated through embedded links leading to both chapter titles, sub-sections, design details, etc.
- Consideration should be taken related to the integrity of embedded links external to the MSSD document. The MSSD document should be updated annually, as done in some other municipalities. This annual update would provide an opportunity to test and modify those links to determine if they no longer take you to the correct location in the source document.
- In the scenario where the NCDOT Standards and Specifications govern, during construction, contractors would be guided by the NCDOT Standard Specifications.
- Standards and Specifications for elements specific to the Town of Wake Forest, the UDO, and Comprehensive Transportation Plan that do not follow NCDOT practices could be included where desired.
- Consider a name change for the document that better represents the contents, which currently includes Construction Standards, Specifications, & Construction Details.
- Repeat information between chapters should be avoided. For example, drainage for roadways and greenways should be found in Stormwater management – not separated into streets and greenways.
- Restructure the chapters to relocate all processes currently noted in each chapter to a new administrative chapter at the beginning of the manual that outlines processes comprehensively.

Table of Contents

- Add a general guide to the beginning of the MSSD document that lays out the organization of the contents and the intended audience for the MSSD. It should also explain how to use and navigate the on-line version of the MSSD, its value and purpose, and what takes precedent between the UDO and MSSD.
- If continuing with an online PDF version of the MSSD document navigated through the Table of Contents, the document should include embedded links in the Table of Contents that take you to selected chapters, sections, figures, tables, and design details of the document.
- Available details listed by chapter should be included as its own page containing embedded links that take the user to the selected design detail image allowing download to several formats (pdf, dgn, dsn).
- Consider reorganizing the MSSD chapters and revising the chapter numbers in a way that better coordinates with the appropriate chapters within the UDO.
- Within each of the listed chapters, provide a more transparent coordination with the text in the UDO. Consider including specific linked content references back and forth between the two documents.
- Access to Chapter 8 is not included online, determine if the information as presented in the Table of Contents should be reintroduced back into the online document.

- Determine if the Chapter 9 organization of design details as presented in the Table of Contents should be reintroduced back into the online document.

Chapter 1 – Water & Sewer Design

- As the Water & Sewer Design section is covered by the 2005 merger with the City of Raleigh, the MSSD would be more user-friendly if it included the general City of Raleigh Public Utilities contact information and an additional link that takes you directly to the City’s Public Utilities Handbook as well as links to the associated Appendices (i.e., Details). The current link takes users to the “Raleigh Water” departmental webpage where users must search for the handbook. A direct link to the handbook would facilitate navigation.
- It would be beneficial to include a general outlined process required to submit water & sewer design plans for review and approval. Clarification is needed regarding the submittal process through both the Town of Wake Forest and the City of Raleigh.
- The current City of Raleigh Public Utilities Handbook is dated 2014. It may be beneficial to confirm if the City of Raleigh has a timeline for their next update.
- Confirm with the City of Raleigh Public Utilities Department, also known as Raleigh Water, if there have been any lessons learned related to coordination of plan submittal and review since the merger in 2005 and consider adding date stamped tips to the chapter.
- Information in the current chapter could be removed and a reference to the City of Raleigh standards could be placed in a new chapter that provides guidance on administrative processes.

Chapter 2 – Stormwater Management

- The existing embedded links to NCDENR and NCDOT should be reviewed and corrected annually as part of a MSSD document update process.
- Information related to inspections and warranties should be moved to a chapter with an administrative focus.
- Reformat chapter to be easily used by a variety of users.
- Develop new design details as needed.

Chapter 3 – Street Design

- Make sure that the standard typical sections referenced in all three documents; the MSSD, Comprehensive Transportation Plan, and UDO are consistent. Update the roadway Functional Classifications that are currently different between the three documents.
- Consider adding a link to the typical sections for the Comprehensive Transportation Plan Street Types or duplicating those sections in the MSSD. The current details may be more clearly connected to these sections if the way they are numbered corresponds to the chapter number.
- Consider the creation of a standalone Street Design Manual to contain pertinent street typical section and road type classification information that complies to both the UDO and Comprehensive Transportation Plan.
- Update the details for the street typical sections and include as links in Chapter 3.
- Consider placing links to details within their corresponding chapters.
- Consider including a link to the UDO requirements for sidewalks.
- Add a graphic and/or detail showing construction methods for sidewalks, concrete ramps, etc.
- Include additional street design information to complement pavement design standards within the Introduction to this chapter.
- Include a chart describing the recommended roadway grades for different design situations.
- Update the table listing minimum horizontal curve radii for specific types of streets to better match the design requirements included in the UDO and referring to the most recent guidance from the American Association of State Highway and Transportation Officials (AASHTO).
- Simplify the detailed pavement design sub-section to be more graphically rich and user-friendly.

- Consider including greenway paving methods, definitions, and details.
- Include a graphic showing pavement sections.
- Edit the description, instruction, and link to each required street inspection and testing methods and add images / graphics to describe each needed test.
- Confirm that the Town still operates under the same Warranty and Acceptance terms.
- In the signing and marking guideline, add text to refer to AASHTO, NCDOT and MUTCD Guidelines.
- Clarify and expand on sight distance requirements.

Chapter 4 – Erosion and Sediment Control

- The existing embedded links to NCDENR and NCDOT should be reviewed and corrected annually as part of a MSSD document update process.
- The chapter references a land disturbing permit application and checklist without a link or detail.
- Reformat chapter to be easily used by a variety of users.
- Develop new design details as needed.

Chapter 5 – Landscape Design & Installation

- Consider placing links to details within their corresponding chapters.
- Add link to where the Official Planting List provided by the Urban Forestry Board can be obtained.
- To be consistent with other chapters, figures should be upgraded to be design details.
- Format of figures is inconsistent and would be more user-friendly if consistent with other Town details.
- Information represented in the figures is incomplete and lacks sufficient detail to ensure quality work and compliance with UDO requirements.

Chapter 7 – Index & Bibliography

- Remove this chapter and place relevant information in a chapter for administration or resources.
- Document cannot currently be navigated by the listed page numbers.

Chapter 8 – Boardwalk and Footbridge

- Consider placing links to details within their corresponding chapters.
- Move Chapter 8 material to the Transportation Chapter
- Place the existing greenway and boardwalk details within their corresponding chapters with links from this chapter to any pertinent chapters.
- Update the chapter where this content is located.

Chapter 9 – Standard Specifications & Details

- Listed as a chapter in the Table of Contents, but the Chapter 9 information may be more appropriately located within their respective chapters.
- Consider relocating the details to fall under their corresponding chapter.

Existing Conditions Assessment Conclusion

The current MSSD appears to be originally based on a word document format, including Table of Contents, page numbers, etc. Consider adopting a version of the document that is web based and not a pdf with embedded links. The contents of this memo have been compiled with the expectation that further coordination with both the Town staff and Houseal Lavigne will be required as they simultaneously update the UDO. Updates to the UDO may alter the identified preliminary recommendations for improving and updating each chapter. The comprehensive update to the Town of Wake Forest's MSSD will be guided by the comments in this memo, as well as continued discussions with Town staff.

Proposed Chapters

Chapter 1 – Administration and Process

Chapter 2 – Erosion and Sediment Control

Chapter 3 – Stormwater Management

Chapter 4 - Transportation

Chapter 5 – Landscape Design and Installation

Chapter 6 – Definitions

Resources