Appendix A

This section includes the City of Memphis’ Complete Streets Signed Executive Order.
EXECUTIVE ORDER
BY THE MAYOR:

No. 01-2013

AN ORDER ESTABLISHING A COMPLETE STREETS POLICY FOR THE CITY OF MEMPHIS

WHEREAS, the Complete Streets concept is an initiative to design the public right-of-way to adequately accommodate all users of a corridor, including pedestrians, bicyclists, users of mass transit, people with disabilities, the elderly, motorists, freight providers, emergency responders, utility providers, and adjacent land users; and

WHEREAS, as outlined in the Goals for Complete Streets developed by the Memphis and Shelby County Complete Streets Coalition, a Complete Street approach will foster economic growth, prioritize safety, create greater connectivity between neighborhoods and amenities, meet the mobility needs of all users, be context sensitive and aesthetically pleasing, reduce traffic congestion and positively impact the health of the community; and

WHEREAS, this Complete Streets Policy is written to empower and direct citizens, elected officials, government agencies, planners, engineers, and architects to use an interdisciplinary approach to incorporate the needs of all users into the design and construction of roadway projects in the City of Memphis; and

WHEREAS, City of Memphis Division of Engineering and Shelby County Division of Public Works, Memphis and Shelby County Office of Sustainability, Memphis Light Gas & Water, Memphis Area Transit Authority, Community Development Council of Greater Memphis, Livable Memphis, Partnerships for Active Community Environments, Healthy Memphis Common Table, Urban Land Institute Memphis, Memphis Area Association of Realtors, West TN American Society of Landscape Architects, Memphis Regional Design Center, and private citizens have assisted in the development of this policy; and

WHEREAS, this effort has received additional support from individuals, organizations, and businesses who have pledged membership to the growing Memphis and Shelby County Complete Streets Coalition; and
WHEREAS, this policy dictates that appropriate accommodation(s) be made so that all modes of transportation can function safely and independently in current and future conditions. This approach demands careful multi-modal evaluation for all transportation corridors integrated with best management strategies for land use and transportation;

NOW THEREFORE, I, A C Wharton Jr., Mayor of the City of Memphis, Tennessee, by virtue of the executive and administrative authority vested in me by the Charter of the City of Memphis and statutes and laws of the State of Tennessee, do hereby direct and order the following to be known as the “City of Memphis Complete Streets Policy”:

1. VISION. The City of Memphis shall create an attractive, vibrant public realm that supports the diverse qualities of our neighborhoods and provides a robust, balanced transportation network that is safe, financially responsible, serves all users, and considers multiple modes of transportation.

2. REVIEW AND COMPLIANCE. All relevant departments, boards and commissions shall make this Complete Streets Policy an integral part of their planning and programming by reviewing plans, guides, regulations and standard drawings to comply with this Executive Order.

   i. Transportation infrastructure in public rights-of-way shall be planned, constructed, reconstructed, and maintained according to this Executive Order, with routine consideration for the variety of users whom they serve and for the opportunities to provide multiple benefits (social, environmental, economic, and health), enhancing the function, appearance and livability of the community.

   ii. Justifications for the exclusions listed below must be documented in any project application.

3. EXCLUSIONS. Appropriate justifications for non-compliance with this Complete Streets Policy are:

   i. Where prohibited by law, such as bicycle and pedestrian facilities within interstate corridors.

   ii. Where compliance would substantially impair unique characteristics of great public value, such as historical importance.

   iii. Where a scarcity of population or other factors such as the physical character or context of the built environment surrounding the public right-of-way indicates an absence of current or future need.

4. DESIGN GUIDE. The City of Memphis Department of Engineering shall partner with relevant Departments of City of Memphis and Shelby County Governments, the Memphis Area Metropolitan Planning Organization, and the Memphis and Shelby County Complete Streets Coalition to create a Street Design Manual for use in all city departments. The Street Design Guide will serve as a toolbox of design guidelines that reflect national Complete Streets best practices for sidewalks, shoulders, automobile lane widths, bicycle lanes, special transit lanes, curb ramps, audible crossing signals, crosswalks, median islands, curb extensions, transit stops, utility accommodations, site furniture, street trees, grass strips, etc.

   i. The Street Design Manual should be for the benefit and use of all other municipalities within the region, and serve as a model for other communities be they urban, suburban, or rural.
ii. The Street Design Manual should be the result of a public-private partnership.

iii. The Street Design Manual shall be completed within 24 months of the execution of the order.

5. IMPLEMENTATION. In order to implement this Complete Streets Policy, The City of Memphis shall pursue additional planning efforts in collaboration with Shelby County Government, the Metropolitan Planning Organization, and the Memphis and Shelby County Complete Streets Coalition.

i. The City of Memphis shall incorporate a project ranking matrix that complies with this Complete Street Policy into its annual CIP review process before the FY2014 CIP budget development.

ii. The City of Memphis Mayor and City Engineer shall work with the Memphis Urban Area Metropolitan Planning Organization to review the Transportation Improvement Plan (TIP) Ranking Matrix to encourage consistency with this Complete Streets Policy.

6. FURTHER PLANNING. In order to ensure that transportation decisions encourage and support a vision for optimal land-use throughout the City of Memphis, the City of Memphis should consider the following planning efforts within three years:

i. A Comprehensive Land-Use Plan.

ii. A Complete Streets Implementation Plan that will delineate and prioritize strategic transportation investments to build a transportation network that serves all users.

7. This Order shall be implemented consistent with applicable law and is not intended to, and does not create, any right, benefit, or privilege, substantive or procedural, enforceable at law or in equity by any party against the City of Memphis, its divisions, departments, agencies or entities, its officers, employees, agents, or any other person.

8. This Order shall be recorded by the Comptroller along with any subsequent orders issues by the Office of the Mayor in a hard bound volume to be maintained by the Office of Council Records. The Office of Council Records shall also maintain each executive order online for public access.

9. This Order shall be effective immediately.

A C Wharton, Jr., Mayor

Executed this 30th day of January, 2013
Appendix B

Roadway designers, engineers, planners, and administrators depend on street manuals for guidance in designing new streets and retrofitting and modifying existing streets. Along with land use planning, street manuals play a large role in determining urban form, serving as the “DNA” of a community’s streets and potentially providing a framework for the development of livable, healthy, sustainable neighborhoods and communities that support active transportation and encourage transit use.
FLEXIBLE STANDARDS

Many of the street manuals used by jurisdictions today are based on the principle that the primary role of a street is to serve as a thoroughfare for motor vehicle traffic. The result has been the construction of many wide, high-speed streets that prioritize traffic movement but compromise other important community goals and work against present-day community needs. Common direct outcomes of existing manuals include:

- Streets that unsafe safe for bicycling, walking, or even driving
- Streets that encourage high speeds
- Streets that are unsightly and uninviting, devaluing surrounding land uses
- Sidewalks too narrow for comfortable pedestrian use, or no sidewalks at all
- Streets that are difficult or dangerous for pedestrians to cross
- Street crossings that are inconveniently located
- Absent or poorly selected street trees
- Heat-island effects caused by excessive exposed hardscape
- Streetwater runoff that overwhelms storm drain systems and contributes to waterway pollution
- Auto-oriented land uses that are uninviting to people walking, biking, and using transit

Street manuals that prioritize motor vehicle use and fail to encourage transit use or accommodate active transportation have led to a number of serious problems for communities nationwide, including:

- Sedentary lifestyles that contribute strongly to rising rates of obesity-related disease, including diabetes, heart disease, cancer, and other negative health outcomes
- Extremely limited transportation options for people without access to cars, who encounter serious obstacles created by wide, high-speed roadways without sidewalks, pedestrian crossings, or bicycle facilities, long distances to mass transit, and shopping and other amenities designed solely for motor vehicle access

In contrast, this manual is based on Complete Streets principles: Streets are for people of all ages and physical abilities and should accommodate all travel modes. This manual presents methods for achieving complete networks to ensure that roadways promote economic vibrancy, equity, environmental sustainability, aesthetics, and opportunities for active transportation.

This manual focuses on network design and roadway design and supports flexibility in developing detailed design solutions appropriate to each neighborhood and community. In adopting this manual, it is recommended that jurisdictions also reference the highly detailed national best practices for design provided in the Federal Highway Administration (FHWA) Manual of Uniform Traffic Control Devices (MUTCD), and the American Association of State Highway and Transportation Officials (AASHTO) publication, A Policy on the Geometric Design of Highways and Streets (aka the Green Book).
FHWA MUTCD

The MUTCD provides standards and guidance for the application of traffic control devices, including roadway markings, traffic signs, and signals. The FHWA oversees application of the MUTCD.

The rules and requirements for the use of traffic control devices differ from street design criteria. Under Federal rules, the MUTCD serves as the basis for state laws governing traffic control devices, resulting in limited flexibility for local jurisdictions to deviate from the Manual. The MUTCD does allow some flexibility within its general provisions for items such as application of standard traffic control devices, use of custom signs for unique situations, traffic sign sizes, and sign placement specifics. However, agencies generally may not develop signs that are similar in purpose to signs within the Manual but use different colors, shapes, or legends. Agencies also are not authorized to establish traffic regulations that are not specifically allowed by, or are in conflict with, state law.

FHWA has procedures in place that allow local agencies to experiment with traffic control devices not included in the current MUTCD. It is not difficult for local agencies to get permission from FHWA to test new devices, especially as they relate to pedestrian and bicycle facilities. However, the requesting agency must agree to conduct adequate before-and-after studies, to submit frequent reports on the performance of the experimental device, and to remove the device if early results are not promising.

The MUTCD establishes warrants for the use of some traffic control devices. For example, stop signs, traffic signals and flashing beacons are limited to applications that meet specific minimum thresholds for such criteria as number of vehicles, number of pedestrians or other users, distance to other devices and crash history. These warrants often constrain local engineers from applying these devices in areas where they could be used to improve safety, such as trail and/or pedestrian crossings of busy, wide, high-speed arterials.

As with street design guidelines, cities may establish their own warrants or modify those suggested by the MUTCD to suit their context and allow use of certain traffic control devices. In special circumstances that deviate from their own warrants, cities must document the reasons for granting exceptions. For example, a city may specify that trail crossings or school crossings qualify for certain traffic control devices.

AASHTO POLICY ON THE GEOMETRIC DESIGN OF HIGHWAYS AND STREETS (THE GREEN BOOK)

The Green Book provides guidance for design elements such as geometric alignment, street width, lane width, shoulder width, medians, curbs, and other features. FHWA has determined that the Green Book applies to all streets receiving Federal funding, including streets and roads that are part of the National Highway System (NHS). The NHS includes the Interstate Highway System, principal routes connecting to those highways, and roads important to strategic defense; in total, the NHS comprises about 4% of all roadway miles.

It is important to note that the Green Book provides guidance that states and cities often unnecessarily treat as standards. The Green Book actually encourages flexibility in design within certain parameters, as evidenced by the AASHTO publication, A Guide for Achieving Flexibility in Highway Design. For example, many jurisdictions prohibit 10-foot lane widths, citing concerns about deviating from federal standards; in fact, 10-foot lanes are allowed under AASHTO guidelines.

VERTICAL ALIGNMENT

The Green Book provides acceptable values for designing vertical curves for streets. The values used in vertical curve design should be selected based on the selected target speed appropriate to the street context. Using higher values can contribute to increased vehicle speeds and may require increased modification to the natural terrain, increasing negative environmental impacts.
AASHTO POLICY ON THE GEOMETRIC DESIGN OF HIGHWAYS AND STREETS (THE GREEN BOOK, CONTINUED)

HORIZONTAL ALIGNMENT

The Green Book provides appropriate values for designing horizontal curves for Complete Streets. The values used in horizontal curve design should be selected based on the target speed appropriate to the street context. Larger horizontal curves create a more suburban or rural highway feel and require more right-of-way; using higher values for horizontal curve design can contribute to increased vehicle speeds and detract from the street character, especially in urban settings.

STOPPING SIGHT DISTANCE

The Green Book provides appropriate values for designing stopping sight distance for Complete Streets. The 2004 AASHTO Guide for Achieving Flexibility in Highway Design is based on the latest research concerning safe stopping sight distance. The document states that the established values for stopping sight distance are very conservative and provide adequate flexibility without creating increased crash risk. Consequently, selecting appropriate target speed is critical to avoid negative impacts, such as unnecessarily limiting or removing on-street parking and trees.

INTERSECTION SIGHT DISTANCE

Intersection sight distance should be calculated in accordance with the AASHTO Green Book, using the appropriate target speed. When executing a crossing or turning maneuver onto a street after stopping or yielding at a stop sign, yield sign, stop bar, or crosswalk, drivers typically move slowly forward to obtain sight distance without intruding into the crossing travel lane, stopping a second time as necessary. Where curb extensions or on-street parking are in place, motorists can be expected to move forward in a second-step movement to check for traffic clearance before crossing or turning. The increased sight distance provided by the two-step movement allows location of on-street parking closer to the intersection.

HORIZONTAL CLEARANCE/CLEAR ZONE

Horizontal clearance is the lateral distance from a specified point on the roadway, such as the edge of the travel lane or curb face, to a roadside feature or object. The clear zone is a relatively flat, unobstructed area provided for errant vehicles.

Horizontal clearance based on clear zone requirements for rural highways is not practical in urban areas characterized by more bicyclists and pedestrians, lower speeds, denser abutting development, restricted right-of-way, and closer-spaced intersections and access points. Urban streets with curbs and gutters do not have sufficiently wide roadsides to provide clear zones. In urban areas, the minimum horizontal clearance is 1.5 feet, measured from the face of the curb. The minimum horizontal clearance on urban streets is primarily intended to facilitate normal operation; for example, clearance is required for sign posts and poles, to make sure they are not hit by car doors and large vehicles with overhangs maneuvering close to the curbside.

PEDESTRIAN GUIDE AND BICYCLE GUIDE

AASHTO also publishes guides specifically for the development of pedestrian and bicycle facilities. The Guide for the Development of Bicycle Facilities and the Guide for the Development of Pedestrian Facilities provide detailed considerations for the design of transportation systems for pedestrians and bicycles, including information on geometric guidelines for the bicycle and pedestrian facilities discussed in Chapter 3.
Both of these manuals are officially adopted by the City of Memphis.

The Urban Bikeways Design Guide provides bikeway design guidance in an easy to reference manual with tabs organized by bike lanes, cycle tracks, intersections, signals, and signing and pavement markings. It provides facility diagrams with dimensions and calculations, signage, required features, recommended features, optional features, maintenance, and the US cities in which these facilities are commonly in use.

Not all of the recommendations in the Urban Bikeways Design Guide are approved by the FHWA for universal use. Some of the facilities are nonstandard and may require additional study and City of Memphis approval before installation.

The Urban Street Design Guide provides additional detail on roadway typology, design principles and elements, and design controls such as design hour, design year, and performance measures. It contains street-level, site plan, and orthographic views of common existing conditions and reconstruction recommendations to incorporate all travel modes. There are more details on traffic-calming measures such as curb extensions, pinch points, chicanes, and speed humps. The manual also features an extensive section on the principles, design elements, and recommendations for varying intersections.

The Urban Street Design Guide contains recommendations for interim strategies to test the functionality of various projects before construction. The manual contains details on the default design vehicle in Memphis, SU-30, in the Design Controls chapter.

Cities are authorized to adopt or modify many of their own street design practices, standards, and guidelines. However, local jurisdictions typically follow State standards, partly because they may lack the resources to develop their own localized set of standards and practices, but also because alignment with State standards may provide protection from liability.

In lawsuits against municipalities arising from traffic-related crashes, one fundamental question is: “Did the municipality follow established or prevailing designs, standards, and guidance?” It should be noted, however, that State standards are not the only design guidelines that can confer protection from liability. The changes to streets discussed in this manual fall within the range of the guidelines or recommended practices of nationally recognized organizations such as AASHTO, the Institute of Transportation Engineers (ITE), NACTO, Urban Land Institute (ULI), and Congress for the New Urbanism (CNU). Adoption of design guidance from this manual, the Green Book and/or other nationally recognized authorities can address municipalities’ liability concerns where street designs deviate from State manuals. Where municipalities adopt standards that differ from the Green Book but generally fall within the range of acceptable practice allowed by nationally recognized design standards, the adopting agencies are protected from liability to the same extent that they would be if they applied the Green Book.

It should be noted that the Green Book is silent on many design features, and that it does not consider design needs within unique, site-specific contexts. In these cases, cities can develop their own guidelines and standards.

Working within previously established regional guidelines that incorporate equivalents or practices from other cities generally should result in a design that is protected from liability. Cities also may adopt the guidance in this manual, which compiles national best practices in creating safe, user-oriented streets.
Cities also may use designs that fall outside the ranges specified by nationally accepted guidelines and standards; unless done with great care, these practices can potentially increase liability. Where agencies elect to use designs that fall outside the guidelines of nationally recognized authorities, they should provide internal documentation to avoid exposure to increased liability. Such documentation must clearly state the rationale or evidence of reasonableness underlying the design decisions.

In some cases, AASHTO design guidelines may not provide information on innovative or experimental treatments that have shown great promise in early applications. As noted above, deviation from the range of designs provided in the AASHTO guide requires agencies to use greater care and diligence to document their justification for the design deviation, the precautions taken to ensure its safety and effectiveness, and the process that led to the determination to implement a design that does not align with the guidelines. These include consideration/analysis and approval by a registered engineer qualified to sign the plans, as well as certification by the city council or reviewing body clearly indicating the agency’s intent. This process documents the engineering judgment that went into the design.

Local jurisdictions may conduct experimental projects to test innovative designs and treatments. Often, these experimental projects are conducted by a design engineer to test a new or evolved design that may be safer or may address a design challenge more effectively than existing solutions available under prevailing standards and guidelines. When conducting these projects, agencies should provide documentation showing that: The experiment design is based on sound engineering judgment; the experiment is expected to improve user safety and/or promote community goals; the experiment is based on the best information reasonably available at the time; the development and implementation of the experiment is logical and reasonable; the results of the experiment are monitored closely, and, the experiment is modified in response to data collected during the monitoring process. This documentation will give the local agency a basis to defend a design as reasonable in the face of litigation, even if the design does not align with a nationally published guideline or recommendation.

Local agencies may use other reports and documents to guide their roadway design and transportation planning. These informational documents do not set standards, but they do provide valuable procedure and reference data. A local authority often has the flexibility to selectively define, endorse, or modify the incorporation of these informational documents into its engineering and planning processes.

There is no way to prevent all collisions, nor all lawsuits, but adoption of widely accepted policies, guidelines, and standards, combined with reasonable precaution in embarking on experimental projects, will yield an approach that is both adequately flexible and legally defensible. The design approaches presented in this manual are intended to improve safety and livability for all people who use the street; as a result, implementation of these features should generally reduce liability.