Legislation

2010 Resolution

Not binding
Vague in goals/open to interpretation
Plenty of outs
Resulted in:
• Sharrows on arterials
• Bike lanes between parking and high-speed traffic
• Minimum width sidewalks next to high-speed traffic
• And on and on

2018 Ordinance

Binding/Part of City Code
Included specifics like:
• Lane widths
• Design vehicles
• Setting design/target speeds
Not just technically providing for all modes, but prioritizing other modes and emphasizing convenience, comfort, and safety
Includes equity component
What are Complete Streets?

• Complete Streets are Safe, Intuitive, Comfortable, and Convenient for all non-automotive modes and all abilities

• Baltimore’s Complete Streets program puts people walking first

• Complete Streets are reflective of the community
Starts with Overall Modal Hierarchy and Guiding Principles

Baltimore's Modal Hierarchy

1. Walking
2. Cycling / Public Transit / Micromobility
3. Taxi / Commercial Transit / Shared Vehicles
4. Single Occupant Automobiles

System Performance
1. Address Safety First: Baltimore streets will be designed with a prioritization to eliminate severe injuries and fatalities.
2. Be Accessible by Everyone: Baltimore streets will be accessible by all modes, for people of all ages and abilities.
3. Improve Mobility: Baltimore streets will efficiently and reliably move people and goods to, from, and around the City.

Community Enhancement
4. Ensure Equity: Baltimore streets will reflect equitable opportunities for travel regardless of race, income, age, disability, health, English language proficiency, and vehicular access.
5. Reflect Baltimore's Unique Communities: Baltimore streets will exhibit neighborhood values, be sustainable, promote economic vitality, and encourage healthy lifestyles through active transportation.
6. Be Sustainable: Baltimore street design methods will align with the City's broader goals of urban sustainability and protecting the environment. Complete Streets designers will utilize best practices in stormwater management, tree placement, streetlighting, public open space,
How Will This Manual Result in Change?

- **Project Prioritization Process**: How we select our projects
- **Project Delivery Process**: How we leverage the work we do to implement Complete Streets
- **Design Guidance**: How we design the roads and public space
• Highways aren’t Streets and Streets aren’t Highways

• The Guidance I’m talking about is only applicable to our Streets
Project Prioritization Process

Local Roads

Step 1: Set PCI Threshold
Establish a PCI threshold that triggers mandatory prioritization for roadway resurfacing to avoid future more costly reconstruction.

Step 2: Set PCI Ranking
Establish a PCI ranking to identify and map roadways in poor condition.

Step 3: Apply Equity Assessment
With the available resurfacing budget, apply the equity assessment by prioritizing projects on roadways in poor condition using the following chart as a guide:

<table>
<thead>
<tr>
<th>Equity Ranking</th>
<th>Percentage of Resurfacing Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 – 5</td>
<td>55%</td>
</tr>
<tr>
<td>2 – 3</td>
<td>35%</td>
</tr>
<tr>
<td>1</td>
<td>10%</td>
</tr>
</tbody>
</table>

Collectors and Arterials

Step 1: Set PCI Threshold
Establish a PCI threshold that triggers mandatory prioritization for roadway resurfacing to avoid future more costly reconstruction.

Step 2: Set PCI Ranking
Establish a PCI ranking to identify and map roadways in poor condition.

Step 3: Apply Weighted Resurfacing Factors
Use the following chart to prioritize resurfacing projects on a weighted scale:

- **Race**
- **Income**
- **Poverty**
- **Education**
- **Transit Dependency**
- **Age**
Project Prioritization Process

Capital Improvement Projects (CIP)

Project Prioritization Process

Step 1: Evaluate CIP Factors
Evaluate and rank areas and/or projects using the following factors:

<table>
<thead>
<tr>
<th>CIP Factor</th>
<th>Description</th>
<th>Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equity</td>
<td>Equity assessment of geographic area</td>
<td>2</td>
</tr>
<tr>
<td>Infrastructure Condition</td>
<td>Condition of the current infrastructure</td>
<td>1</td>
</tr>
<tr>
<td>Economic Development Potential</td>
<td>Potential economic development resultant from infrastructure investment</td>
<td>1</td>
</tr>
<tr>
<td>Safety</td>
<td>How well projects/roadways in the area align with the TowarZERO Baltimore Initiative and have the potential to address safety issues</td>
<td>1</td>
</tr>
<tr>
<td>Existing or Planned Work by Other Departments</td>
<td>Potential to leverage/combine resources from projects being planned or constructed by other departments</td>
<td>1</td>
</tr>
<tr>
<td>Transit Dependency and Commute Times</td>
<td>Transit dependency of the population in the geographic area. Consider average commute times and the potential for projects in this area to improve commute times.</td>
<td>1</td>
</tr>
</tbody>
</table>
The Project Delivery Matrix

Lessons Learned

- Who is going to do these tasks?
- Is the project development process organized to have projects follow the delivery process?
- How much more staff is needed?
- Who makes final decisions?
Previous Practice When Designing
• FHWA Functional Classification + Some other things (popularity contest)

New Mentality
• Functional Classification is just a small part
• Land Use/Context matters more
Example: Baltimore Street (Minor Arterial)  Changing Context = Different Street Design Needs
Priorities and Dimensions based on Street Type

Table 1. Limited Right-of-Way Priorities

<table>
<thead>
<tr>
<th>Street Type</th>
<th>Sidewalk Zone</th>
<th>Pedestrian Subzone</th>
<th>Furnishing Subzone</th>
<th>Car Space</th>
<th>Curbside Lanes Subzone</th>
<th>Travelway Subzone</th>
<th>Median Subzone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Downtown Commercial</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>On Bicycle Network</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>On Transit Network</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>On Truck Route</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Downtown Mixed-Use</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>On Bicycle Network</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>On Transit Network</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>On Truck Route</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>3</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Urban Village Main</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>On Bicycle Network</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>On Transit Network</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>4</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>On Truck Route</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>3</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Sidewalk Zone Requirements

<table>
<thead>
<tr>
<th>Street Type</th>
<th>Requirements</th>
<th>Subzone</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Frontage</td>
</tr>
<tr>
<td>Downtown Commercial</td>
<td>Maximum</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>Target</td>
<td>2'</td>
</tr>
<tr>
<td></td>
<td>Constrained</td>
<td>0'</td>
</tr>
<tr>
<td>Downtown Mixed-Use</td>
<td>Maximum</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>Target</td>
<td>2'</td>
</tr>
<tr>
<td></td>
<td>Constrained</td>
<td>0'</td>
</tr>
<tr>
<td>Urban Village Main</td>
<td>Maximum</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>Target</td>
<td>2'</td>
</tr>
<tr>
<td></td>
<td>Constrained</td>
<td>0'</td>
</tr>
</tbody>
</table>
Priorities and Dimensions based on Street Type

• Why aren’t people using the sidewalk here?

• Stop putting sidewalks with no buffer to traffic. Satisfying the minimum for accessibility does not equal safety or comfort.

• Reevaluate “can’t” when considering roadway capacity
  • “We can’t reduce the road from 4 lanes to 3 lanes because it would be too congested”

• We designed a street that’s only comfortable in a car; therefore people only drive; then we say “Why would we reappropriate space. No one’s walking?”
What if we followed these priorities in the past?

- **Baltimore City before MLK Jr. Blvd was built = 10th most populous city.**
  - Today = 30th most populous city.
- **What would have happened if something like the street below was built instead of an 8-lane urban highway?**
  - Driving would have been more difficult in exchange for better transit, better bikability, safer streets, more commercial activity, better tree canopy, increased connectivity between Downtown and West Baltimore.
Speed Limits, Target Speeds, and Design Speeds by Street Type

- Set Speed Limits and Design/Target Speeds by Street Type

- Requires enabling legislation for widespread implementation (that almost passed)... maybe next year

Table 10. Target Speeds by Street Type

<table>
<thead>
<tr>
<th>Street Type</th>
<th>Target Design Speed (MPH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Downtown Commercial</td>
<td></td>
</tr>
<tr>
<td>Base Target Speed. However, if:</td>
<td>25</td>
</tr>
<tr>
<td>On Bicycle Network (Separated/Buffered Bike Lanes)</td>
<td>25</td>
</tr>
<tr>
<td>On Transit Priority Network</td>
<td>25</td>
</tr>
<tr>
<td>On Truck Route</td>
<td>25</td>
</tr>
<tr>
<td>Downtown Mixed-use</td>
<td></td>
</tr>
<tr>
<td>Base Target Speed. However, if:</td>
<td>25</td>
</tr>
<tr>
<td>On Bicycle Network (Separated/Buffered Bike Lanes)</td>
<td>25</td>
</tr>
<tr>
<td>On Bicycle Network (Traditional Bike Lanes)</td>
<td>20</td>
</tr>
<tr>
<td>On Transit Priority Network</td>
<td>25</td>
</tr>
<tr>
<td>On Truck Route</td>
<td>25</td>
</tr>
<tr>
<td>Urban Village Main</td>
<td></td>
</tr>
<tr>
<td>Base Target Speed. However, if:</td>
<td>20</td>
</tr>
<tr>
<td>On Bicycle Network (Separated/Buffered Bike Lanes)</td>
<td>20</td>
</tr>
<tr>
<td>On Bicycle Network (Traditional Bike Lanes)</td>
<td>20</td>
</tr>
<tr>
<td>On Transit Priority Network</td>
<td>20</td>
</tr>
<tr>
<td>Urban Village Neighborhood</td>
<td></td>
</tr>
<tr>
<td>Base Target Speed. However, if:</td>
<td>20</td>
</tr>
<tr>
<td>On Bicycle Network (Separated/Buffered Bike Lanes)</td>
<td>20</td>
</tr>
<tr>
<td>On Bicycle Network (Traditional Bike Lanes)</td>
<td>15</td>
</tr>
</tbody>
</table>
Changing the Guidelines

From Smart Growth America, Dangerous by Design

Is there some level of carnage we could reach where local, state, and national transportation policymakers and leaders would finally wake up to the crisis at hand? What would it take? Is it 7,000 fatalities a year? 8,000? What's the magic number?

What would it take for them to finally choose to stand athwart history and yell "STOP"? And then join us and others in saying:

- Stop prioritizing speed over the safety of all people
- Stop choosing to move cars fast at all costs
- Stop thinking we can educate people out of an engineering problem
- Stop ignoring the impact of ever-enlarging trucks and SUVs on the likelihood of being killed by one
- Stop blaming the victims who are struck and killed
- Stop treating every street or road like it serves the same purpose
- Stop thinking that cars moving fast = a prosperous economy
- Stop thinking that enforcement isn't tainted by issues of systemic racism
- Stop making it impossible to cross the street
- Stop valuing some lives more than others
- Stop repairing dangerous roads in well-to-do neighborhoods or prosperous downtowns while leaving the most dangerous ones unchanged in Black neighborhoods

We need to wake up from this Groundhog Day.
Changing the Guidelines

• Adapt Guidelines to Local Conditions
  • Baltimore’s courteous, patient drivers
  • Limited resources and money to perform studies on every corridor
  • Stop pretending that the current manuals = 100% safe

• Employ Guidance to Implement Change Without Red Tape, Informed by Crash Data

“Sure, I can assess a gap in 4 lanes of opposing traffic while simultaneously giving the pedestrian in the crosswalk that’s 90 feet away the right of way because the sign tells me so”
Changing the Guidelines

- **Use as a practical check, but don't depend on it.**
- **Baltimore City's historic roads weren't designed for trucks in mind but still serve trucks... and they're safer.**

Table 9: Standard Radii for Intersection Design/Redesign and Quick-Build Projects

<table>
<thead>
<tr>
<th>Street Intersections</th>
<th>Effective Curb Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential Streets</td>
<td>10 feet</td>
</tr>
<tr>
<td>Mixed Use/Commercial (Not Transit/Truck Routes)</td>
<td>15 feet</td>
</tr>
<tr>
<td>Transit Streets</td>
<td>20 feet</td>
</tr>
<tr>
<td>Local Truck Routes</td>
<td>25 feet</td>
</tr>
<tr>
<td>Major Truck Routes</td>
<td>25–30 feet</td>
</tr>
</tbody>
</table>

*Design Vehicle by Street*

Design vehicles vary by Street Type, and exceptions should be considered to design for smaller vehicles on specific intersection corners that do not need to accommodate a bus or a truck.

*General Design–DL-23*

This is a standard delivery vehicle often used for package delivery services to both residential and business locations. The DL-23 shall be the design vehicle on any street that does not accommodate a transit route or a truck route. This is based on the most recent edition of NACTO Urban Street Design Guide as specified in Baltimore City Code Art. 26 Subtitle 40 Complete Streets SS 40-27(b).

A crawl speed of less than 5 mph should be assumed for turning simulations of large vehicles on truck and transit routes. On smaller streets or access points for deliveries, a “stop and turn full lock” approach should be used in simulation of the control vehicle turn.
Changing the Guidelines

- Check Crash History
- Curb radii: If it’s not broke, don’t fix it
- Perceived “difficulty” or “dysfunction” does not mean unsafe. It’s often safer this way
Changing the Guidelines

Number of Through Lanes
Consistency in the number of through lanes on a corridor should be a priority to prevent aggressive driving and passing maneuvers. Unless additional lanes can be justified by a significant traffic source or turning movement, the number of through lanes should be kept the same. For example:

- Projects on roadways that transition from 2-through lanes to 4-through lanes to 2-through lanes should be analyzed for conversions to a consistent 2-through lanes.

Lane additions that are justified through a significant traffic generator or turning movement should stay consistent downstream until dropped as high-volume turning movements or other “sinks.” If the lane drop does not occur at a high-volume “sink,” or turning movement, the lane addition should be considered for removal.

Lane Drops
Merging lane drops, or lane drops that occur at low-volume turning movements should be avoided when possible. In the context of an urban environment, lane drops create opportunities for aggressive drivers to speed in order to get ahead of queued traffic before or after an intersection. Consistency in through lanes should be considered. Projects that occur on roadways with existing lane drops should investigate methods of eliminating those conditions by extending the segment in which the number of lanes in reduced.

Lane Drops at Intersections
Existing intersections with safety issues/high crash rates should be prioritized for safety treatments, whether through a quick-build program or longer-term capital improvement projects. Lane drops that occur just prior to or after those intersections should be eliminated, as while they may increase traffic capacity slightly, they can increase the speed differential between lanes and increase the likelihood of aggressive driving, passing, and merging.

Similarly, lane additions for capacity reasons should not occur at or just before an intersection. Removing situations in which this condition exists can help prevent aggressive lane changes/passing and ambiguous right-of-way assignment through intersections where the number of through lanes increases just before an intersection and decreases shortly after.
## Changing the Guidelines: Bike Safety, Ped Safety

### Table 3. NACTO’s Choosing an Ages & Abilities Bicycle Facility, Modified to be Baltimore-Specific

<table>
<thead>
<tr>
<th>Target Motor Vehicle Speed</th>
<th>Target Motor Vehicle Volume (Single Direction AADT)</th>
<th>Roadway Context</th>
<th>Key Operation Considerations</th>
<th>All Ages &amp; Abilities Bicycle Facility</th>
</tr>
</thead>
</table>
| Any                        | 1,000-2,000                                         | Any of the following:  
* high pedestrian volume  
* high levels of motor vehicle congestion  
* high number of turning conflicts  | Separated Bike Lane or Shared-Use Path  
Urban Village Shaded Street  
Bicycle Boulevard, Contra Flow Bike Lane (1)  
Traditional or Buffered Bicycle Lane, Left-Side Bike Lane (1)  
Separated Bicycle Lane  
Separated Bicycle Lane, or Protected Bicycle Lane  
Signaled Crossings  
High volume multi-lane roadways  
High-speed limited access roadways  |}

### Passive Measures

Providing passive measures such as stop signs, pedestrian crossing signs, and striped crosswalks may be appropriate at unsignalized intersections on lower volume roads that operate at their intended target speeds. Passive measures are acceptable crossing treatments on streets that:

- Are classified as local or collector
- Operate at a target speed of <25 mph
- Have Average Daily Traffic of <8,000 vehicles per day
- Are only one lane in each direction

See Intersection Types below for further design guidance.

### Active Measures and Raised Crosswalks

Providing active measures such as rectangular rapid flashing beacons or other flashing lights, or raised crosswalks may be appropriate on medium volume roadways that operate at their intended target speeds. Active measures are acceptable crossing treatments on streets that:

- Are classified as a collector or arterial
- Operate at a target speed of <25 mph
- Have Average Daily Traffic of <12,000 vehicles per day
- Are only one lane in each direction

See Intersection Types below for further design guidance.

### Students are eligible for transportation based on the distance from home to school:

- Elementary school students who live more than 1 mile from their neighborhood school receive yellow bike safety helmet.
- Middle school students who live more than 1.5 miles from their neighborhood school (or the citywide school) receive Bike Cards for use on the MTA.
- High school students who live more than 1.5 miles from their school receive a One Card for use on the MTA.
Changing the Guidelines: Traffic Signals

Traffic Signal Operations

- Focuses on proper signal timing by street type
  - Shorter cycles especially for narrower roads
  - Emphasis on reducing “Excessive Green Time” to calm traffic
  - Transition from Corridor-Based to Balanced Signal Timing

- Basic “Do’s and Don’ts”
  - Eliminate multiple turn lanes phased concurrent with pedestrian movements
  - Only protected left-turn phasing when there are three opposing travel lanes

How timings have been set in the past... open the flood gates to downtown (and the County)
Changing the Guidelines: Traffic Signals

- Keep Signal Cycles Short
- COVID-19 Pandemic has shown Excessive Green Time leads to speeding

- Stop Letting Level of Service Make Decisions
- Our Roads Designed before HCM/LOS are safer than the ones designed after
How You Can Get in Touch

Thank You!

Graham Young Graham.Young@baltimorecity.gov