



CITY OF SAINT PAUL

Christopher B. Coleman, Mayor

25 West Fourth Street

Saint Paul, MN 55102

Telephone: 651-266-6700

Facsimile: 651-228-3220

TRANSPORTATION COMMITTEE OF THE PLANNING COMMISSION

Monday, January 28, 2013, 4:00 p.m. – 5:30 p.m.

All meetings are held in the City Hall Annex 13<sup>th</sup> floor

Conference room at 25 West 4<sup>th</sup> Street in Saint Paul

1. Saint Paul Street Design Manual: Update and Progress Report, Including Introduction to Better Block Event and First Pilot Project – Anton Jerve, PED, 1 hour
2. Staffing Update – Michelle Beaulieu, PED
3. Announcement – Riverview Corridor

*Upcoming Transportation Committee Meetings*

- February 11 – Streetcar Feasibility Study Phase I evaluation

---

Meetings are open to the public. The Chair may allow five minutes for informal public comment (from non-committee members) at the beginning of each agenda as needed. Additional time may be allocated for comments or further discussion at the discretion of the Chair. Meetings will be cancelled if there is not a quorum expected, or if there are no agenda items. For additional information on the Transportation Committee of the Planning Commission, please visit our website at [bit.ly/StPaulTC](http://bit.ly/StPaulTC) or contact Hilary Holmes at [hilary.holmes@ci.stpaul.mn.us](mailto:hilary.holmes@ci.stpaul.mn.us) or 651-266-6612.

## Transportation Committee Staff Report

<b>Project Name</b>	<i>Saint Paul Street Design Manual</i>
Geographic Scope	<i>Citywide</i>
Ward(s)	<i>All</i>
District Council(s)	<i>All</i>
Project Description	<i>Planning process to develop a Street Design Manual for the City of Saint Paul, which also includes several planning-level pilot projects and one "Better Block" event. The project team includes Public Works, PED, Parks , DSI, Toole Design Group, SRF Consulting, Foster Willey, and Better Block</i>
Project Contact, email, phone	<i>Anton Jerve, <a href="mailto:anton.jerve@ci.stpaul.mn.us">anton.jerve@ci.stpaul.mn.us</a> / 266-6567</i>
Lead Agency/Department	<i>Planning and Economic Development</i>
Purpose of Project/Plan	<i>Public purpose for pursuing the project or plan</i>
Planning References	<i>Implementing several Comprehensive Plan policies as well as City Council Resolution</i>
Project stage	<i>In Process, Progress Report</i>
General Timeline	<i>Completion September 2013</i>
District Council position (if applicable)	<i>N/A</i>
Level of Committee Involvement	<i>Review and provide feedback</i>
Previous Committee action	<i>Workshop Participation</i>
Level of Public Involvement	<i>N/A</i>
Public Hearing	<i>N/A</i>
Public Hearing Location	<i>N/A</i>
Primary Funding Source(s)	<i>Federal TIGER II Grant funds, City of Saint Paul</i>
Cost	<i>\$300,000</i>

## Saint Paul Street Design Manual – Working Draft Outline

### 1. Introduction

- a. Statement from Mayor
- b. Purpose of Saint Paul Street Design Manual
- c. Audience for the Street Design Manual
- d. Guiding Principles
- e. How to use the Manual

### 2. Background & Relationship to Other Documents

- a. Policy Support for Developing a Street Design Manual
  - i. Comprehensive Plan (*Ed. Note – look at transportation and land use, major themes that inform street design guide*)
  - ii. Complete Streets Resolution
- b. Transportation Planning and Design Documents  
(*For documents below, create template that includes: where to find; when updated; frequency; how it relates to other documents; governance – level of authority; guidance or standard; ave. ½ page for each.*)
  - i. National/Federal
    - a) 2009 MUTCD
    - b) AASHTO Green Book
    - c) Highway Capacity Manual (*including multi-modal LOS*)
    - d) 2012 AASHTO Guide for the Development of Bicycle Facilities
    - e) NACTO Urban Bikeway Guide
  - ii. State of Minnesota
    - a) MN/DOT Road Design Manual
    - b) MN/DOT Bikeway Facility Design Manual
    - c) State Aid Manual
  - iii. Metropolitan Council
    - a) Regional Transitway Guidelines
    - b) [Station and Support Facility Design Guidelines User Guide](#)
  - iv. City of Saint Paul
    - a) Standard Plates
- c. Other Relevant Documents that Inform Street Design
  - i. Federal
    - a) ADA/PROWAG
  - ii. City Ordinances
    - a) Traditional Neighborhood Zoning Regulations (*Part II, Title VIII, Chapter 66, Article III*)
    - b) Subdivision Regulations (*Part II, Title VIII, Chapter 69*)
    - c) Historic Preservation Districts and Programs (*Part II, Title IX, Chapter 74*)
    - d) Street Vacation Procedures (*Part II, Title XII, Chapter 130*)
    - e) Projections and encroachments (*Part II, Title XII, Chapter 134*)

- f) Right of Way Permits (*Part II, Title XII, Chapter 135*)
- g) Block Parties Community Festivals (*Part II, Title XXIX, Chapter 366*)
- h) Public Art Ordinance (*Part III, Title I, Chapter 12*)
  - a. Administration Guidelines
  - b. PAIL Document
- i) Assessments (*Part III, Title IV Chapters 61-65*)
  - Parkway Ordinance*

### **3. Urban Design Treatments - How they Relate to Each Other**

*(Editorial note – will have intro/overview (including definition of street type (land-use based) and a discussion of functional classes (e.g. collector arterial) within the definitions) and example streets for each of the street types below; will also have graphics displaying items below; each graphic will highlight design elements that relate to each other; also included will be a narrative explaining the relationships along with “hot links” to specific design treatments articulated in subsequent chapters; finally, there will be call-out boxes to highlight agreed upon priorities/themes for the manual – e.g. opportunities for public art, green infrastructure, win/win design solutions (all modes), etc.)*

- a. Downtown Streets
  - i. Intro (including
  - ii. Corridor
  - iii. Intersections
- b. Mixed Use Corridor Streets (Neighborhood Centers)
  - i. Mixed-use Corridor
    - a. Traditional corridor
    - b. Transitional corridor (*idea – 3 to 4 graphics - existing; changed street; changed land-use, end result*)
    - c. Intersection
    - d. Angled Intersection
- c. Residential Corridor Streets
  - i. Corridor
  - ii. Intersections
- d. Established Neighborhood Streets
  - i. Corridor
  - ii. Intersection
- e. Parkway show land-use as residential)
  - i. Parallel bike path (*4 lanes with parking & bulbs on residential side; river and trail on other side*)
  - ii. Median with on-street bike lanes (*2 lanes with parking and bike lanes – residential on both sides*) e.g. Summit Ave)
- f. Industrial

- i. Corridor (*consider sidewalk on one side; in rare cases, sidewalks may not work on either side; wider curb radius, curbs where there is a sidewalk; wider curb cut; reinforced concrete at crossings*) Intersection

#### 4. Street Design

*(call out treatments that have maint. issues – not all will; connect to chapter on maint.)*

##### Part 1: Behind the Curb

*(Editorial note: proposing to have template for each treatment/topic listed in chapters 4, 5, and 6-templates may be one page or multiple pages, with most being 2-pages)*

- a. Introduction
- b. The Zone System:
  - i. Curb Zone
  - ii. Sidewalk zone
  - iii. Greenscape/furniture zone,
  - iv. Frontage zone

*Above will include: Characteristics by Street Type – e.g. sidewalk width (in table or graphic format – possibly both)*
- c. Sidewalks
  - i. Sidewalk buffers (both sides)
  - ii. Clearance
  - iii. Materials: Standard, above standard and historic
- d. Parking Pockets/Insets (*in the furniture zone; will it work with snow?*)
- e. Green Infrastructure
  - i. Plantings – (*value – when and where, personal safety, sight distance*)
  - ii. Street trees (*reference & see street tree master plan*)
    - Will include guidance on the following:
      - a. Root Environment - *Space requirements, Soils: Standard; above standard*
      - b. Tree openings (*Grass vs. paved boulevard*): *Standard; above standard*
  - iii. Vegetated storm water management (*with curbs; without curbs*)
- f. Lighting
  - Will include sub-section on materials: Standard, above standard, and historic*
- g. Driveways (*design and location in relation to intersections*)
- h. Sidewalk Amenities
  - i. Transit Stops (shelters; route information etc.)
  - ii. Sidewalk cafés
  - iii. *Will include subsections on the following: Street furniture (seating, waster receptacles, kiosks, bollards)*
- i. Public plazas
- j. Street sign and utility placement (*Signs, utilities, fire hydrants, parking meters*)
- k. Bicycle Parking (*rack type, placement, installation, maintenance*)

- l. Wayfinding signage – bicycle; pedestrian
- m. Site Planning – Best Practices (*use TOD guidebooks for guidance – addresses any building anything than a single family or duplex*)
  - i. Building access/entrances (*location and number*)
  - ii. Facades (*transparency, blank walls*)
  - iii. Parking placement (excludes industrial)

## **Part 2: Between the Curbs**

- n. Introduction
- o. Characteristics by Street Type & Land Use (Summary Table)
- p. Travel lanes
  - i. Lane widths (address lane delineation (i.e. edge of right lane), design speed, freight, transit, emergency response)
  - ii. Number of lanes
  - iii. One-way vs. two-way streets
- q. Paved Shoulders
- r. Clearances (lateral and vertical)
- s. Roadway lighting
- t. Access management
  - i. Driveway Consolidation
  - ii. Medians
  - iii. Right-in/right-out (left turn prohibition)
- u. Parkway
- v. Bridges (including approaches)
- w. Transit
  - i. Stop Placement (far side/near side/median (length of bus stops can be a problem – some too short))
  - ii. Bus pull-outs/In-lane stops/bus bulbs
  - iii. Bus lanes
  - iv. Peak hour bus lanes
  - v. Shared bus-bike lanes
  - vi. LRT
  - vii. Streetcar
- x. Curbside Management
  - i. Orientation and delineation of parking (angle, parallel)
  - ii. Parking management (no-parking, peak-hour restrictions, smart technologies, loading zones - commercial uses, sweeping and snow (address parklets not in a lot of detail))
- y. Bicycle facilities
  - i. Bike lanes (right side/left side, widths, designs to reduce dooring, markings, relation to lane seams)

- ii. Buffered bike lanes
- iii. Contra-flow bike lanes
- iv. Shared lanes (marked and unmarked)
- v. Climbing lanes/Shared lane
- vi. Sidepaths (two-way, one-way)
- vii. Cycle tracks
- viii. Bicycle boulevards
- ix. Shoulders
- x. Drain Grates
- z. Traffic calming
  - i. Street messaging (parking, street trees, neighborhood signs)
  - ii. Neckdowns
  - iii. Chicanes
  - iv. Speed humps/tables)
  - v. Center (Crossing) islands
- aa. Convertible Streets (i.e. farmer's markets; bicycle Saturdays, festival streets; design intent – *note* – *tied to permits* – Considerations?)
- bb. Alleys (include guidance on one-way vs. two-way) )
- cc. Summary Matrix

### **Part 3: Intersections**

- dd. Introduction
- ee. Characteristics by Street Type & Land Use (*Summary Table*)
- ff. Intersection Design
  - i. Curb radius (*design vehicle*)
  - ii. Curb extension
  - iii. Skewed intersections
  - iv. Modified T-intersections
  - v. Roundabouts
  - vi. Intersection median barriers
  - vii. Right turn slip lanes (*with and without pedestrian island (pork-chop island)*)
  - viii. Pedestrian accommodation at complex intersections
  - ix. Lighting
- gg. Curb ramps (*design and placement in relation to crosswalks*)
- hh. Crosswalks
  - i. Marked crosswalks at locations with positive traffic control,  
*Include guidance on: High visibility marked crosswalks, crosswalk texture, coloring and width, advanced stop bar; parking restrictions*
  - ii. Marked crosswalks at uncontrolled locations  
*Include guidance on: Crosswalk installation; advanced yield markings and signs; crossing warning signs; in-street pedestrian crossing sign, parking restrictions, lighting*

- iii. School Crosswalks
  - School Crossing signs
  - School Speed Zone
- iv. Mid-block crossings – Pedestrian and shared use path crossings
 

*Include guidance on: crossing islands, curb extensions, pedestrian signals, staggered pedestrian signals; hot response*
- v. Over and Under Crossings (*when & where to use; how to retrofit existing – go from gage design to architectural fence – add lighting; downtown – elevated trains require underpasses to get to river; opportunities for public art. trails*)
- ii. Signals (*Re-iterate from Guiding Principles - Street and intersection design should balance the safe and efficient movement of nonmotorized users with the efficient movement of motor vehicles. Whenever possible, win-win design solutions should be identified to improve access and mobility of people and goods*)
  - i. Signal timing
 

*Include guidance on: ped walk times (2009 MUTCD); bicycle clearance times (new AASHTO guidance);*
  - ii. Signal phasing
 

*Include guidance on: concurrent phasing, protected vs. protected/permissive lefts; exclusive ped phase, split phasing, LPI, hot response, left-turn phasing, signal coordination*
  - iii. Signal activation
 

*Include guidance on: Push buttons (when and where to use), push button placement, response time, ITS*
  - iv. Pedestrian indicator and countdown signals,
  - v. Accessible Pedestrian Signals (APS); accessible buttons (*LED lights; tactile*)
  - vi. Right-turn on red
  - vii. Leading pedestrian interval
  - viii. HAWK (Pedestrian Hybrid Beacon) & PUFFIN (pedestrian user-friendly intelligent crossing)
  - ix. Rectangular rapid flashing beacon
- jj. Bicycle facilities
  - i. Bike lanes at intersections (*include right-turn and left turn and ‘through the intersection’ considerations*)
  - ii. Bicycles and traffic signals (*signal head, detection, leading bicycle interval*)
  - iii. Green bike lanes
  - iv. Bike box
  - v. Two-stage turn queue box
  - vi. Ramps and interchanges
- kk. Traffic calming and management
  - i. Mini-circles
  - ii. Chokers
  - iii. Raised intersections
  - iv. Diverters
  - v. Left turn prohibition

- vi. Partial street closure
- vii. Full street closure
- viii. Summary matrix

**5. Maintenance (*tie to templates – those that have major maint. Issues: also – in intro – note responsibilities of property owners to maintain Blvd.; also – Metro has standards for maintaining areas around stops*).**

- a. Chart of maintenance needs and action items; *discussion of accountability*
- b. Maintenance schedule based on life-cycle costs (*include green infrastructure*)
- c. Snow removal and storage
- d. Public art maintenance

**6. Summary of Considerations**

- a. Matrix (summary of major considerations/trade-offs of all treatments)

**7. Implementation**

- a. Institutionalization
  - i. City staff; Transportation Committee, elected officials
  - ii. Code adoption
  - iii. Integration of design specifications with other manuals/policies/regulations (*provide matrix that includes all the design treatments*)
  - iv. Responsibilities (*City, County, State, Metro Transit, Private development – include in matrix described above*)
  - v. Routine accommodation (*e.g. repaving, restriping, utility work, transit projects, new development*)
  - vi. Complete Streets Checklist
- b. Funding
- c. Pilot projects (*roadmap for trying new things*)
- d. Monitoring and Evaluation (*include accountability*)
- e. Updating this manual
- f. Amendments
- g. Q and A – addressing Common Barriers to Implementation

## Saint Paul Street Design Manual – Guiding Principles

The guidelines and policies presented in this manual are centered on the following principles which provide a framework for the planning, design, and management of Saint Paul’s streets:

- 1. Neighborhood Vitality:** Streets help define neighborhoods. Streets that perform multiple functions support vital local economies by providing efficient access and mobility, enhancing the public realm, creating community, and improving environmental quality. Allowing for flexibility in design accommodates and strengthens the attributes that make each neighborhood unique. The design approach for each street should balance the needs of pedestrians, transit riders, and bicyclists with those of motorists. The guidance provided pushes the City toward implementation of streets that perform multiple functions and support economic development and neighborhood vitality.
- 2. Accommodate All Modes of Travel:** Each design should consider the needs and characteristics of all modes of travel (driving, transit, walking, bicycling, freight) and strive to identify win-win solutions for improving access and mobility of people and goods. This approach will maximize transportation investments, enhance livability, provide transportation choices, and encourage active living.
- 3. Safety for All Users:** Safety of all roadway users must be taken into account throughout the design process, especially more vulnerable groups such as senior citizens, children, and persons with disabilities.
- 4. Placemaking and Preservation:** Streets represent the largest component of public space in Saint Paul and contribute greatly to a sense of place and community. Saint Paul streets can strengthen community cohesion through the integration of public art and other placemaking elements. Historic areas, corridors, and buildings are also an integral part of the City’s character. Use flexibility in order to maintain, and, in some cases, accentuate the historic attributes that make Saint Paul and its individual neighborhoods unique.
- 5. Sustainable Design:** Recognize and address the social, economic, aesthetic, and environmental impacts of street design. Long-term environmental and financial sustainability depend on long-term health of resources and predictable maintenance costs. As a winter city, all-season functionality is critical for street design. Emphasize design techniques that reduce maintenance costs, and integrate green infrastructure to improve street tree health, manage stormwater runoff, and improve environmental quality.

## **Reference Example :**

### **Highway Capacity Manual**

**Issuing Agency/Organization:** Transportation Research Board

**Level of Authority:** Guidelines

**Source:** Available for purchase

**Updates:** Periodic (approximately every 10 years), last updated 2010

**Overview:** The Highway Capacity Manual is a publication of the Transportation Research Board (TRB). It contains concepts, guidelines, and computational procedures for computing the capacity and quality of service of various highway facilities, including freeways, highways, arterial roads, roundabouts, signalized and unsignalized intersections, rural highways, and the effects of mass transit, pedestrians, and bicycles on the performance of these systems. The latest edition of the Highway Capacity Manual (2010) significantly updates the methodologies that engineers and planners use to assess the traffic and environmental effects of highway projects. Most notably, the manual includes an integrated multimodal approach to the analysis and evaluation of urban streets from the points of view of automobile drivers, transit passengers, bicyclists, and pedestrians, otherwise known as Multimodal Level of Service or Quality of Service. Building on previous research (NCHRP Report 616, NCHRP 3-70) the 2010 Highway Capacity Manual enables agencies to balance the level of service needs of auto drivers, transit riders, bicycle riders, and pedestrians in their street designs by providing agencies with a tool for testing different allocations of scarce street right-of-way to the different modes using the street. It is anticipated that quality of service analysis will continue to improve as the understanding of various roadway user characteristics and perceptions improves and microsimulation analyses are calibrated accordingly.

### **AASHTO Guide for the Development of Bicycle Facilities**

**Issuing Agency/Organization:** American Association of State Highway Transportation Officials

**Level of Authority:** Guidelines

**Source:** available for purchase

**Updates:** Periodic (approximately every 10 years), last updated 2012

**Overview:** The AASHTO Guide for the Development of Bicycle Facilities provides information on how to accommodate bicycle travel and operations in most riding environments, and serves as a key resource for planners and designers developing bicycle facilities. The 4th edition (published in June 2012) is a significant update to the previous edition published in 1999. The AASHTO Bike Guide is a comprehensive manual, covering all aspects of bicycle planning and design for both on-road and off-road bikeways, including fundamental operating characteristics of bicyclists and geometric design. Sufficient flexibility is permitted to encourage designs that are sensitive to local context and incorporate the needs of bicyclists, pedestrians, and motorists. However, in some sections of this guide, e.g. bike lanes, shoulders, suggested minimum dimensions are provided. These are recommended only where further deviation from desirable values could increase crash frequency or severity.

## 4.X Curb Extension (Bulb Out)

### Definition

Curb extensions (also known as bulb outs) are created by extending the sidewalk or curb line into the roadway. Curb extensions are intended to increase safety by reducing crossing distance and enhancing pedestrian visibility, calm traffic (particularly right-turning vehicles), and provide extra space along sidewalks for pedestrians and amenities.

### Applicability and Use

- May be considered at signalized or unsignalized intersections and midblock only where on-street parking is present.
- Particularly valuable at unsignalized locations with high volumes of pedestrian traffic (e.g. near schools, major transit stops), wide streets with long crossing times, or where there are demonstrated pedestrian safety issues.
- May extend into either one or multiple legs of the intersection, depending on other operational and design factors such as parking configuration, desired transit stop location, and on-street bicycle facilities.
- May be used at transit stops (i.e. bus bulb) to increase transit stop waiting area capacity and facilitate in-lane stopping of transit vehicles.
- May provide space for utilities, signs, and amenities such as bus shelters or waiting areas, bicycle parking, public seating, public art, street vendors, newspaper stands, trash and recycling receptacles, natural drainage and greenscape elements.
- May provide space for ADA compliant, directional curb ramps where sidewalks are narrow.
- Should not be used on arterials that have peak hour parking restrictions to move traffic more efficiently.
- Potential impacts to underground utilities, curbside parking, delivery access and garbage removal, snow plows, and street sweepers should be evaluated prior to installation.

Photo of Curb extension at W Exchange St and St Peter St. with signal light controlled intersection

Photo of Curb extension at W Exchange St and St Peter St. with stop sign controlled intersection

**Public Art Opportunity:** Curb extensions may provide space for placemaking elements such as public art, seating, bicycle racks, and landscaping. Photos of public art as bike racks and wayfinding.

### Design Considerations

- May be placed on all eight sides of an intersection, just one side or any combination. Curb extension placement and design will depend on geometry of intersection, turning movements of larger design vehicles, and other factors listed under 'Applicability and Use'.

- Width should be equal parking lane width minus one foot, and should never encroach into the adjacent bike lane, where present.
- Length may vary, but should generally extend at least 5 ft beyond the extension of the corner property line. At a minimum the curvature of the curb extension should start outside of the crosswalk. Longer curb extensions improve sight lines and provide more space for pedestrian use and landscaping.
- Curb radius depends on design vehicle, but should generally be as small as possible. When curb extensions conflict with turning movements, the design should be modified (i.e. increased radii or reduced size) rather than eliminated whenever possible due to the safety benefits they provide for pedestrians.
- The angle of curvature for the parking side of extension should facilitate snow plow operation and can also be used reduce encroachment of parked vehicles (for improved sight lines). **Does city have minimum/maximum/preferred radius on parking side for street sweeping, plowing equipment??**
- In areas with high parking demand (e.g. Downtown) and where a bike lane is present, white diagonal markings may be used in the area between the first parking space and the curvature of the curb extension to further improve sight lines.
- Where used at uncontrolled intersection approaches minimal objects should be sited within the curb extension in order to maintain sight lines.
- May require the relocation of existing storm drainage inlets, but conditions may allow for maintaining existing drainage.

Illustration with caption: Curb extensions may be placed on all 8 sides of an intersection or any combination of sides wherever there is space.

Illustration with caption: Curb extension design is determined by many factors including design vehicle, maintenance operations, and meeting other objectives such as safety, integration of green infrastructure, public art and pedestrian amenities.

Rendering of adjustments made to intersect to become “Complete Street.”

Photo of before and after street scene, after includes walking space for pedestrians, bike parking, pedestrian scale street lighting, landscaping as a buffer between sidewalk and automobile traffic.