



Designing Cities

NACTO Urban Street Design Guide Proposal

JUNE 1, 2012

Kittelson & Associates, Inc.

Sam Schwartz Engineering

Alta Planning + Design

Greenworks

Accessible Design for the Blind

Street Plans Collaborative

Pure+Applied



Battery Park City, New York City, NY

June 1, 2012

Mr. David Vega-Barachowitz
NACTO
55 Water Street, 9th Floor
New York, NY 10041

RE: *Urban Street Design Guide Proposal*

Dear Mr. Vega-Barachowitz and members of the selection committee:

On behalf of the Kittelson & Associates, Inc. (KAI) Team, I am pleased to submit this proposal for the NACTO *Urban Street Design Guide*.

With the recent publication and widespread praise of the *Urban Bikeway Design Guide*, NACTO is positioned at the forefront of our industry. NACTO's work has opened doors to new design approaches for many American cities and progressed ahead of existing industry guidance (e.g., MUTCD, AASHTO) to establish a new leading voice for urban planning and engineering. The *Urban Street Design Guide* presents a unique and exciting opportunity to build upon the momentum of this work. The Guide will provide cities with a new approach to street design and an expanded toolkit tailored to addressing the unique opportunities and challenges of building, maintaining, and retrofitting urban streets.

The KAI Team is excited for the opportunity to support this vital work and is well positioned to enable NACTO to exceed its goals for the *Urban Street Design Guide*. We have specifically built our Team to facilitate a holistic and collaborative approach to development of the Guide. Our key staff includes national experts and innovators in multimodal operations, complete street and intersection design, public works administration, universal access, green infrastructure, and placemaking. Our team also includes the primary authors of various industry-leading guidebooks, such as the *FHWA Livability and Transportation Guidebook*, *AASHTO Highway Safety Manual*, and *Traffic Signal Timing Manual*. Our collective expertise in complete street design and implementation includes leading production of the *Philadelphia Complete Streets Design Handbook*, the *PennDOT/NJDOT Smart Transportation Guide*, the *North Carolina Complete Streets Design Manual*, *Ontario Bikeways and Design Guide*, and the *Walking Action Strategies Guide*, among others. We understand how to deliver a product intended not just for vision-casting, but one that will also ensure relevancy to practitioners and that is readily implementable.

Our team members were directly involved in the development of the *Urban Bikeway Design Guide* and will build upon the successes and lessons learned from this experience. Our previous and ongoing work with NACTO member cities also provides us insight into the needs and desires for this Guide. We will hit the ground running, building upon our Team's strong foundation of knowledge and focusing our efforts on new approaches and opportunities. We look forward to continuing to move forward thinking with you.

Sincerely,
KITTELSON & ASSOCIATES, INC.



Mark Vandehey, PE
CEO





Logan Square, Philadelphia, PA

1	Project Understanding
5	Project Approach
36	Team Profile
	Kittelson & Associates, Inc.
	Sam Schwartz Engineering
	Alta Planning + Design
	Greenworks
	Accessible Design for the Blind
	Street Plans Collaborative
	Pure+Applied
52	Relevant Experience
69	Project Team Members
77	References
79	Timeline
82	Budget
84	Appendix: Resumes



Rosa Parks Way, Portland, OR

Project Understanding



The KAI Team creates street designs that balance the social, economic, and mobility functions of urban streets.

Building upon the successes and lessons learned from the *Urban Bikeway Design Guide*, the *Urban Street Design Guide* will provide practitioners with an expanded toolkit of strategies to address the unique opportunities and challenges of urban streets.

Kittelson & Associates, Inc. (KAI), in association with **Sam Schwartz Engineering (SSE)**, **Alta Planning + Design**, **Accessible Design for the Blind (ADB)**, **Greenworks**, **Street Plan Collaborative**, and **Pure+Applied**, is pleased to submit this proposal in response to the Request for Proposals for the NACTO *Urban Street Design Guide*.

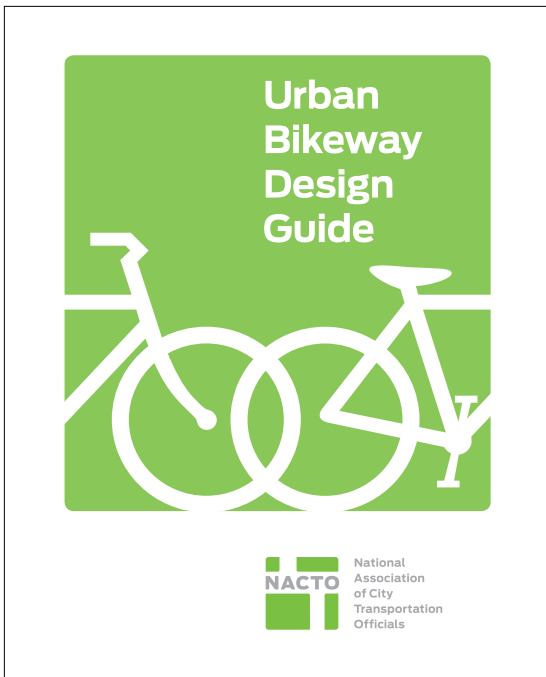
Streets play a vital and versatile role in the economic, social, and civic life of American cities. Street design has a strong impact on movement of vehicles and goods as well as on comfort and safety for pedestrians and cyclists, transit access and performance, economic vitality, public health, community identity, environmental quality, and many other aspects of urban life. In most cities, streets comprise a significant percentage of publicly owned land, and thus present a unique opportunity to achieve a variety of community goals. Many American cities seek to offer more diverse, sustainable transportation options that maximize the use of limited space and resources. However, entrenched design standards and practices that focus on only a small portion of urban streets' overall function all too often limit what cities can do.

The NACTO *Urban Street Design Guide* will provide a much needed resource to assist cities in re-envisioning their approach to street design. Building upon the successes and lessons learned from the *Urban Bikeway Design Guide*, the *Urban Street Design Guide* will provide practitioners with an expanded toolkit of strategies to address the unique opportunities and challenges of urban streets. It will illustrate design fundamentals that address the needs of all roadway users and the interaction between streets and surrounding land uses. It will also provide clear, concise guidance and research to address common concerns and misconceptions that often act as 'road blocks' to implementing complete streets and innovative urban street designs.

The following sections detail the KAI Team's vision for the NACTO *Urban Street Design Guide* and the guiding principles that will direct our work.

Guiding Principles

The KAI Team has been at the forefront of advancing the state of the practice for urban street design through our work in NACTO member cities and other urban environments nationwide. We understand the limitations of current processes and are excited to help create a new and improved process and set



The KAI Team will build upon successes and lessons learned from leading development of the NACTO Urban Bikeway Design Guide and other cutting-edge national research efforts and guidebooks.



The Urban Street Design Guide will be developed in coordination with, but will not be limited by established guides such as the MUTCD. Multiple KAI Team members are also active NCUTCD members.

of guidelines for cities that incorporates a comprehensive view of urban street function and includes worldwide best practices. Our work with NACTO will be guided by the following principles:

Transparency and Clarity

- The KAI Team will build upon our experience producing the NACTO *Urban Bikeway Design Guide* and other documents to develop concise, visually rich, and practical guidance that is accessible to a broad audience of concerned citizens, policy makers, and practitioners (planners/engineers). We will utilize clear graphics and layouts to illustrate broad concepts for interested citizens and decision makers, while also providing the design details necessary for experienced practitioners to understand and implement specific treatments.

Innovation

- The KAI Team has extensive experience leading successful national and international research efforts that culminate in cutting-edge yet implementable practitioners' guides. We will investigate the range of existing and emerging practices, provide clear guidance for implementation of best practices (making clear connections to existing guidelines, where applicable), and identify promising practices that may merit additional research in the future. We will strive to make the Guide creative yet practical, ambitious yet prudent.

Mixed uses and users

- The KAI team recognizes that streets are spaces for people, not just traffic. We have worked with cities nationwide to reallocate and redesign street space to better serve pedestrians with disabilities, bicyclists, transit vehicles and passengers, freight carriers, and other roadway users. We will use this experience to incorporate into the Guide design approaches that reduce and manage conflict between roadway users wherever possible.

Vision for the Urban Street Design Guide

The *Urban Street Design Guide* will be a groundbreaking document that will provide cities with a new approach to street design and an expanded toolkit tailored to addressing the unique opportunities and challenges of building, maintaining, and retrofitting urban streets. The KAI team has identified the following vision for the final *Urban Street Design Guide*:

Purpose

- Serve as an urban version of federal and state design guides and processes, composed of innovative and proven design solutions developed by cities, for cities. The Guide will be developed in coordination with, but will not be limited by established guides such as the *Manual of Uniform Traffic Control Devices* (MUTCD) and *AASHTO Policy on the Geometric Design of Highways and Streets* (the "Green Book").
- Empower readers to understand critical street design issues and common misconceptions that act as barriers to complete street design and implementation. (See Table 6 in the Project Approach for a summary of the



The Urban Street Design Guide will provide a toolkit that is adaptable to many urban contexts, from dense downtowns to low density developments.



KAI Team's understanding of and experience addressing critical design issues identified in the RFP.)

- Establish an enhanced street typology incorporating surrounding land use and street functionality for multiple users that will serve as framework for developing complete street networks (can complement or replace traditional functional classification systems).
- Provide contextual design tools and guidance to help reduce conflicts and increase comfort and safety at intersections for all users. Because intersections are where transportation modes and activities converge special attention must be given to how users negotiate right-of-way spatially and in time.
- Provide a design toolbox for users to select from to accommodate diverse urban contexts, as opposed to universal standards. These tools will provide ideas and tactics for retrofitting existing streets, intersections, and networks; as well as guidance for new street construction.
- Be adoptable as a council-approved design guide. Cities should be able to adopt or approve the Guide as a foundational resource that informs decisions and practice on par with the AASHTO Green Book and *Highway Capacity Manual*.

Audience

- Provide a practitioner's guide for public agency staff, planners, designers, engineers, and others that recommends when, where, why, and how to implement street design treatments and what to consider when designing, operating and maintaining them
- Act as a vision-casting document that will inspire leaders and decision makers and serve as a community knowledge building resource for those with limited or no technical expertise.
- Recognize that "one size does not fit all." The Guide will be adaptable to diverse urban contexts (geographic, climactic, and political environments) and include considerations and lessons learned regarding the conditions where design treatments may or may not be appropriate.

Format

- High-quality layout, design, and organization that makes the document (web and print versions) very easy to use
- Consistent with Bikeway Guide
- In order to keep pace with rapid changes in urban environments and the design field, the web-based and print guides will enable regular content updates developed collaboratively with NACTO member city staff.



Project Approach

The following approach is based on our team's understanding of NACTO's needs for the Designing Cities initiative, lessons learned from the NACTO *Urban Bikeway Design Guide* development process, and our experience successfully completing other research, complete streets implementation projects, and design guides for cities nationwide.

Table 1 provides a summary of the KAI Team's preliminary project approach, schedule, and deliverables. We are flexible in our approach and look forward to refining this work plan based upon coordination with the Project Oversight Committee.

On-street parking spaces can be transformed into active street spaces and/or parklets, such as this sidewalk café in Philadelphia. KAI led development of the Philadelphia Complete Streets Design Handbook.

(Photo credit: Ryan Collerd)



TABLE 1: PRELIMINARY PROJECT APPROACH AND SCHEDULE

	Jul	Aug	Sep	Oct	Nov	
TASK / ACTIVITY	1	2	3	4	5	
Task 0. Project Management and Oversight						
– Oversight Committee Kick-off Meeting		○				
– Monthly Oversight Committee Conference Calls (See Table 2)						
– Ongoing Project Management						
PHASE 1 PROJECT DEVELOPMENT						
Task 1. Annotated Outline and Guide						
<i>Subtask 1.1. Outreach and Literature Review</i>						
– Conduct NACTO Member Interviews		○				
– Conduct Literature Review						
<i>Subtask 1.2. Annotated Guide Outline</i>						
– Develop Annotated <i>Urban Street Design Guide</i> Outline		○		○		
– Conduct Additional Outreach for Case Studies (As Needed)						
– Document Emerging Issues for Future Exploration				○		
Task 2. Web Development Specifications and Mock Up						
– Initial Web Design Discussion with Oversight Committee						
– Develop Three Graphic Layout Options			○			
– Document Approved Design & Technical Details					○	
Task 3. Develop Draft Content for Three Street/Intersection types						
– Draft Content for Home Zones, Downtown Streets, & Public Plazas				○		
– NACTO Designing Cities Conference & Work Session Support					★	
Task 4. Develop Draft Content for Two Critical Design Issues						
– Develop Draft Content for Pedestrian Crossings & Lane Width					○	○
Task 5. Print Format for <i>Urban Street Design Guide</i>						
– Initial Layout Discussion with Oversight Committee						
– Develop Two Graphic Layout Options						○
PHASE 2 FULL CONTENT DEVELOPMENT & LAYOUT						
Task 6. Full Content Development						
– Develop Content for All Critical Issues, Street & Intersection Types						
Task 7. Development, Testing, and Revision of Website						
– Fully Develop Website Using Approved Content						
– Performance Testing and Updates						
Task 8. Layout of Print Guide						
Task 9. Website Roll Out, Media Work, and Support						



[illegible][illegible][illegible]

Task 0 (ongoing): Project Management and Oversight

The KAI Team will manage the NACTO *Urban Street Design Guide* process effectively so that each team member has a common expectation of the project outcome. Elements of the project management and oversight task include:

– Kickoff Meeting

The Team will lead a kickoff conference call with the Project Oversight Committee to discuss goals and priorities for the *Urban Street Design Guide* and to review the draft work plan and project schedule. We will also ask Committee members for examples of literature, key contacts, case studies, and best practices with which they are familiar so that we can include them during our literature review and outreach in Task 1. Within 2 weeks following the project's contract start date, we will deliver a detailed work plan incorporating comments received from the Committee and updates the schedule, budget, and hours by task as needed.

– Monthly Conference Calls

The Team will participate in monthly conference calls with the Project Oversight Committee over the course of the project. We have structured our project schedule to use this time to seek the Committee's input on key project decisions and to discuss deliverables, whenever possible. Table 2 summarizes the preliminary discussion topics planned for each monthly call. Representatives of each of the Team members will participate in each call, as appropriate.

TABLE 2 PRELIMINARY MONTHLY OVERSIGHT COMMITTEE DISCUSSION TOPICS

MEETING NO.	PLANNED DISCUSSION TOPIC(S)
Kickoff Meeting	Refine work plan & schedule. Discuss project priorities. Identify literature, contacts, case studies, and best practices for further investigation.
Meeting #1	Update on literature review and NACTO member interviews.
Meeting #2	Review draft annotated guide outline and web design concepts.
Meeting #3	Review draft home zone, downtown street, and public plaza content. Plan for NACTO Designing Cities conference.
Meeting #4	Review draft pedestrian crossing and lane width content.
Meeting #5	Review print format design options.
Meeting #6	Review additional draft chapters
Meeting #7	Review additional draft chapters
Meeting #8	Review rough draft of complete guide
Meeting #9	Review revised draft of complete guide
Meeting #10	Review draft web and print guides. Discuss roll-out.
Meeting #11	Review final web and print guides. Finalize roll-out.



Large and/or complex intersections provide opportunities to create public plazas that provide active public spaces, community amenities, and enhanced safety for all roadway users. The KAI Team has helped cities leverage these opportunities at multiple locations such as Gansevoort Street at Ninth Avenue.



– Ongoing Project Management

The Team Project Manager, Mary Raulerson, will be in regular contact with NACTO staff and team members via in-person meetings, e-mail, phone calls, and video conferencing to discuss project progress and deliverables. We will produce monthly progress reports and invoices summarizing tasks completed and ongoing work.

TASK 0 DELIVERABLES:

- Kickoff conference call with Project Oversight Committee.
- Detailed Work Plan in PDF format.
- Monthly conference calls with Project Oversight Committee.
- Monthly invoice and progress report

PHASE 1: PROJECT DEVELOPMENT

During this phase, the KAI Team will work closely with the Project Oversight Committee to develop the framework for the *Urban Street Design Guide*, including an annotated outline and functioning concepts for the web and print versions of the Guide. Our Team's previous experience developing the NACTO *Urban Bikeway Design Guide* will allow us to efficiently create products that are consistent and integrated with the existing NACTO website and print guide. These efficiencies will allow us to focus our efforts on content development and preparation of multiple example Guide chapters for presentation at NACTO's Designing Cities Conference on October 24-26, 2012.

Task 1: Annotated Outline of Guide

Subtask 1.1 – Outreach and Literature Review

As part of our previous work developing the NACTO *Urban Bikeway Design Guide* and other national complete streets research and design documents, the KAI Team has already completed literature reviews covering many of the critical issues, street types, and intersection types identified for inclusion in the NACTO *Urban Street Design Guide*. Through our previous work designing and implementing street improvements in multiple NACTO cities, the team is also familiar with the unique street design opportunities, challenges, and priorities many NACTO members would like to see addressed in the *Urban Street Design Guide*.

We will continue to build from our previous experience and provide NACTO with a product that will provide detailed information about each treatment by completing the following subtasks:

– NACTO member interviews

The Team will conduct 30-60 minute phone interviews with representatives of interested NACTO member cities to identify their goals and priorities for the Guide, including areas where they desire additional guidance and specific topics, design treatments, and case studies they would like to see included in the Guide. Team members will review relevant and available local design documents prior to each interview to identify targeted questions and ensure productive use of interview time. Table 3 provides a list of potential interviewees based on the Team's past work with NACTO

member cities. The list will be refined and expanded to include additional NACTO member representatives, as appropriate, through coordination with the Project Oversight Committee. Interviews will be divided among team members based on geography and existing working relationships with NACTO member cities. The Team will develop a brief memo summarizing key issues and themes identified through the interviews for discussion with the Project Oversight Committee meetings #1 and #2.

TABLE 3: POTENTIAL NACTO INTERVIEWEES BY CITY

NACTO MEMBER CITY	POTENTIAL INTERVIEWEE	TEAM EXPERIENCE
Washington, DC	Colleen Hawkinson Senior Transportation Planner / District Department of Transportation	KAI, SSE
Seattle, WA	Sandra Woods Multi-Modal Program Delivery Manager / Seattle Department of Transportation	SSE, Alta
San Francisco, CA	Oliver Gajda Senior Planner, Livable Streets / San Francisco Municipal Transportation Agency	Alta
Chicago, IL	Luann Hamilton Deputy Commissioner / Chicago Department of Transportation	SSE
New York City, NY	Janette Sadik-Khan Commissioner / New York City Department of Transportation	SSE, P+A
Philadelphia, PA	Rina Cutler Deputy Mayor / Mayor's Office of Transportation and Utilities	KAI, SSE
Portland, OR	Tom Miller Director / Portland Bureau of Transportation	KAI, Alta

The KAI Team is familiar with much of the existing street design literature through previous work and involvement in development of guides. We will complete the literature review efficiently and focus on innovative treatments such as home zones.

(Photo credit: Homezones.org.uk)



– **Literature review**

The Team will conduct a literature review focusing on filling knowledge gaps related to priority issues identified through the kickoff meeting and NACTO member phone interviews. The review will follow a similar approach to that successfully used for the *Urban Bikeway Design Guide* literature review, focusing on the following types of documentation:

- *National guides (e.g., MUTCD, AASHTO documents, 2010 Highway Capacity Manual, Public Rights of Way Accessibility Guidelines)*

This review will be brief and focus on how these standards address critical issues and innovative treatments, since the Team is already familiar with many of these materials through previous work and/or involvement in development of these guides.

- *State and local documents (e.g., NYC Street Design Manual, San Francisco Better Streets Plan, Complete Streets Handbook)*

This review will focus on identifying best practices in use nationwide and successful case studies to illustrate concepts included in the Guide.

- *International approaches (e.g., Austroads, CROW, Transport for London)*

This review will focus on identifying innovative and best practices in use internationally that have potential for application within the United States.

Table 4 (p. 12-13) summarizes literature that the Team is familiar with or plans to review as part of this task and each document's coverage of the proposed contents of the *Urban Street Design Guide*. The team will complete this matrix as it completes the Literature Review. The team will address remaining knowledge gaps by conducting additional outreach for case studies as described in Subtask 1.2.

TABLE 4 LITERATURE REVIEW SUMMARY MATRIX

[illegible]

[illegible]



The KAI Team has led research on “traditional” critical design issues such as lane width and signal operations, as well as innovative design solutions such as cycle tracks and plaza retrofits.



The KAI Team has helped multiple cities incorporate green infrastructure into street improvements to simultaneously enhance the pedestrian and natural environment.

Subtask 1.2 – Annotated Guide Outline

The Team will summarize the results of the literature review and NACTO interviews as an annotated outline for the *Urban Street Design Guide*. The Team will provide a draft outline to the Project Oversight Committee for review one week in advance of the third monthly call. Based on our previous experience developing successful practitioners’ guidebooks, we believe the Guide should incorporate the following elements:

- Structure that is easy for users to navigate to find needed information,
- Ample margins and generous use of graphics and figures that make the guide a convenient day-to-day reference,
- Appropriate references for more detailed information,
- Sidebars containing case studies illustrating how communities have successfully implemented the designs and approaches in the guide, and
- Emphasis on practical guidance rather than theory.

A preliminary outline of the guide is presented below. This outline will be refined based on the literature review and discussions with the Project Oversight Committee. A description of the Team’s current understanding of and experience addressing the critical design issues and street/intersection types to be included in the Guide is presented in Table 5.

Front Matter

This section includes Title Page, Forward, Table of Contents, Photo Credits, etc.

Introduction

This section will present the motivation for the guide, its intended audience, and its structure.

Critical Design Issues

This section will include 1-2 page descriptions of common challenges to implementing complete streets and provide detailed guidance to jurisdictions on how to successfully overcome them, including case studies, graphics, and additional references. These issues will be cross-referenced throughout the remainder of the Guide. Preliminary critical issues identified in the RFP include:

- Travel lane width
- Design and operating speed, including speed limits
- Traffic capacity and number of travel lanes, including peak hour parking restrictions
- Roadside clear zones
- Building/frontage zone
- Legal standing and liability
- Bus stop placement and design
- Transit lane design and placement
- Sidewalk cafes and alternative curbside uses
- Design vehicle/wheel base, including curb radii and emergency vehicle access
- Pedestrian crossing warrants
- Curb extensions
- Right-of-way/Yield Control vs. Stop/Signal Control



The KAI Team has helped multiple cities incorporate green infrastructure into street improvements to simultaneously enhance the pedestrian and natural environment.



- Signal timing and operations, ; including leading pedestrian interval
- Turn restrictions
- Level of service, alternative intersection performance measures

Additional critical issues that were not included in the RFP, but the team recommends addressing in the NACTO *Urban Street Design Guide* include:

- Bicycle facilities (integration with the *Urban Bikeway Design Guide*)
- Sidewalk clear width and materials/texture
- Access management & driveway design (e.g., location, sight distance, audible/visible notification, truck loading)
- On-street parking (e.g., location, management, curbside access, parking meter equipment location, min/max requirements, interaction with bicyclists)
- Utility placement and coordination
- Green stormwater infrastructure
- Retrofitting complex intersections/streets

Urban Street Design Types

This section will include 1-2 page descriptions of “conventional” and “special” urban street types that build upon or replace traditional street functional classifications by incorporating surrounding land uses and the street’s multimodal network function. Preliminary street types identified in the RFP include:

- Boulevards
- Downtown/CBD streets
- Neighborhood commercial streets
- Neighborhood connectors
- Residential streets
- Pedestrian priority shared commercial streets
- Home zones/shared streets
- Green alleys/streets

Additional street types issues that were not included in the RFP, but the team recommends addressing in the NACTO *Urban Street Design Guide* include:

- Urban arterials
- Industrial streets
- Transit corridors (busways and rail)
- Parkways

Urban Intersection Design Types

This section will include an overview of general intersection design principles and 1-2 page descriptions of urban intersection types with detailed design guidance. Preliminary intersection types identified in the RFP include:

- “Retrofit” public plazas at intersections
- Intersections near transit hubs and stations
- Intersections near schools, parks, waterfronts, and key destinations



Intersection design should accommodate and minimize conflicts between roadway users. Multiple design options can accommodate differing local priorities and budgets.



Additional intersection types that were not included in the RFP, but the team recommends addressing in the NACTO *Urban Street Design Guide* include:

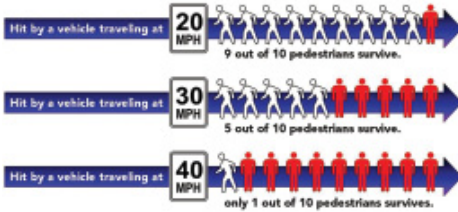
- Complex intersections (more than 4 legs, skewed geometry, etc.)
- Highway ramps
- Major/major intersections
- Major/minor intersections
- Minor/minor intersections

Design Treatments & Suitability (possible appendix)

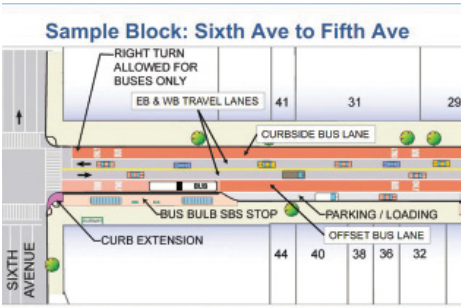
This section will provide an accessible reference for city engineers and planners to assess specific design treatments and values for their streets and intersections. The primary content will be a matrix showing the suitability of design treatments for street and intersections types.

End Matter

This section will include the Glossary and Index.

GUIDE TOPIC	TOPIC UNDERSTANDING	APPLICABLE TEAM EXPERTISE
CRITICAL DESIGN ISSUES		
Travel Lane Width 	The AASHTO “Green Book” recommends 12' lane widths for high speed principal arterials. Many jurisdictions use 12' as their standard lane width for all streets and are reluctant to allow narrower lane widths. Restriping existing streets to reduce travel lane widths (e.g., from 12' to 11' or 10') can help free pavement width to accommodate pedestrian, bicycle, or transit facilities without widening the roadway or acquiring additional right-of-way. Travel lane width also influences vehicle speeds, maneuverability, and urban design.	The KAI Team has worked with jurisdictions nationwide to increase understanding of the impact of travel lane width on traffic operations and vehicle access. Multiple KAI-led research efforts have addressed the impacts of lane width on street operations. Research done on urban and suburban arterials for the <i>AASHTO Highway Safety Manual</i> found that travel lane width did not impact the number of crashes on roadway segments. The <i>2010 Highway Capacity Manual (HCM)</i> shows that there is little to no operational (saturation flow) difference between lanes groups with an average width of 10' to 12.9'.
Design and Operating Speed 	The design and operating speed of a street is strongly correlated with the street's comfort and safety for pedestrians, cyclists, and other roadway users. However, streets are commonly designed to serve vehicles traveling 10 miles above the posted speed limit. The likelihood of a pedestrian surviving a crash with a vehicle decreases exponentially as vehicle speed increases.	The KAI Team has extensive experience conducting speed and safety evaluations of urban streets and working with jurisdictions to design and implement traffic calming and other treatments to encourage appropriate vehicle speeds.
Traffic Capacity 	Streets are typically designed to accommodate traffic volumes at a certain level of service during the peak 15 minutes, resulting in excess road capacity during the remainder of the day on most streets. Peak hour parking clearance can be used to provide added capacity during peak hours, but make installation of bike lanes and/or curb extensions infeasible.	KAI has assisted the Oregon Department of Transportation, Prince George's County, MD and others in evaluating existing volume/capacity standards and in developing alternative standards for transit-oriented or commercial neighborhoods where higher levels of congestion are acceptable.

GUIDE TOPIC	TOPIC UNDERSTANDING	
Roadside Clear Zones	The clear zone is an unobstructed, relatively flat area beyond the edge of the traveled way that allows a driver to stop safely or regain control of a vehicle that unexpectedly leaves the traveled way. Clear zones are primarily applicable to high-speed rural roads, but can result in unnecessarily high vehicle speeds in urban settings. Curbs, barriers, signs, trees, landscaping, and power poles are primary examples of features that can affect a driver's speed or lane position if located too close to the roadway edge.	According to FHWA, the minimum horizontal clearance for all roadway conditions and classifications is 1.5 feet. In urban areas, the application of horizontal clearance as opposed to the clear zone concept allows for trees, landscaping, and infrastructure to be located closer to the roadway than would be acceptable on high-speed rural roads, where clear zones apply. The KAI Team has worked with jurisdictions to increase understanding of the impacts of these design approaches.
Building/Frontage Zone  The diagram illustrates the three zones of a sidewalk. From left to right: the 'Furnishing Zone' contains a tree, a street lamp, and a trash can; the 'Walking Zone' shows three pedestrians walking; and the 'Building Zone' is the area immediately adjacent to a building, marked by a wall and a fence. A black silhouette of a building is shown on the far left, and a black silhouette of a building is shown on the far right. A black silhouette of a building is shown on the far left, and a black silhouette of a building is shown on the far right.	The Furnishing Zone is the area of the sidewalk between the walking zone and curb. The furnishing zone provides pedestrians a buffer from traffic and provides a space for plantings, street furniture, and other amenities. The Building Zone is the area of the sidewalk immediately adjacent to the building face, wall or fence marking the property line, or a lawn in lower density residential areas. The Building Zone includes architectural elements such as steps/stoops, bay windows, or planters and commercial activities such as sidewalk cafes that encroach into the sidewalk.	KAI led development of the <i>Philadelphia Complete Streets Design Handbook</i>, which establishes design recommendations and minimum/recommended building/furnishing zone widths for all street types in the City. The resulting design guidance supports streetscapes that enhance the pedestrian environment, while maintaining adequate clear space to maintain accessibility for individuals with disabilities.
Legal Standing and Liability	Tort liability and risk management are key issues that agencies and practitioners need to be aware of and properly assess. Some documents, such as the <i>Manual on Uniform Traffic Control Devices</i>, have become codified and are regulatory in nature; leading to their on-going use in courtrooms. Others, such as the recently prepared <i>Highway Safety Manual</i>, were carefully designed as a resource as opposed to a design manual. As a resource, the <i>Highway Safety Manual</i> (led by KAI) was written to document methods and materials that inform practitioners but does not provide decision making direction.	The KAI Team is experienced writing documents using clear concise language, quantifiable statements of fact (versus opinion), and a writing style that avoids unintended judgments, directives, etc. In addition to offering experienced writers and technical experts, KAI staff routinely interacts with legal professionals who could be invited to comment on the document and/or provide key insights. For example, a KAI staff member serves as a committee member on the Transportation Research Board Committee on Tort Liability & Risk Management (ALO70).

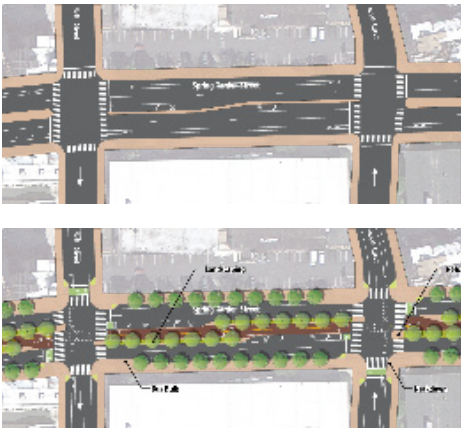
GUIDE TOPIC	TOPIC UNDERSTANDING	APPLICABLE TEAM EXPERTISE
Bus Stop Placement and Design 	Bus stop placement and design must take into account bus operations, passengers, pedestrians, and other roadway users. This includes minimizing walking distance to primary attractions and street crossings where possible. Additional pedestrian design considerations include whether there is sufficient sidewalk space, especially for queuing passengers and riders with disabilities. Particular consideration should be given to design of bus stops adjacent to bike lanes where crossing maneuvers may occur. “Mixing zones” or other treatments should clearly alert bus drivers and cyclists to expected maneuvers.	One strategy to minimize passenger crossing distances, especially where one side of the road is devoid of pedestrian destinations or where buses will be turning left, is to install a transit stop/station in the median at an intersection. These have been approved for two locations in New York City for the Hyman Boulevard Select Bus Service (SBS) and as part of the Downtown Jamaica Bus Congestion Study—two SSE projects. Another strategy to increase sidewalk width at bus stops, facilitate bus operations, and reduce pedestrian crossing distances is to install bus bulbs, as has been done as part of New York City’s SBS Service. KAI also led development of the <i>Transit Capacity & Quality Service Manual</i>.
Transit Lane Design and Placement 	Where roadway congestion delays transit service, dedicated transit lanes may improve transit speed and reliability. Depending on congestion patterns, transit lanes could be in effect 24 hours per day or only during peak times. They could be located in the curb lane, in an off-set lane or in the center lane(s). However, as transit lanes provide the most benefit on roadways with heavy traffic volumes, it can be difficult to gain approval to remove travel lanes from use by general traffic. In addition to consideration of the impact of transit lanes on general traffic, attention should also be given to the impact of transit lanes on bicycle traffic—whether or not bicycle lanes are present or proposed. On a one-way street, it is typical to locate the transit lane on the right-hand side of the roadway and the bicycle lane on the left-hand side.	KAI led development of the <i>BRT Practitioners Guide</i>, which provides practical guidance on transit lane placement and design. For the Nassau Hub Alternatives Analysis, SSE evaluated dedicated transit lanes and queue bypass lanes at discreet, problematic locations. As these treatments are necessarily location-specific, bus priority strategies can often be tailored to speed bus service with little or no impact to general traffic by rationalizing intersection operations, adjusting signal timing, etc.. SSE has deployed these strategies throughout our work on the New York City Select Bus Service system and for our work with New York City Transit and New York City DOT to speed bus service through Downtown Jamaica, Queens.

GUIDE TOPIC	TOPIC UNDERSTANDING	APPLICABLE TEAM EXPERTISE
Sidewalk Cafes and Alternative Curbside Uses 	In an increasing number of NACTO member cities, curbside parking lanes are being retrofitted for enhanced curbside transit access, food trucks, parklets/pop-up cafes, and in-street bicycle parking corrals, among other uses. Of particular note are parklets, or derivations thereof, that have spread from NACTO member city San Francisco to other NACTO peer cities, including New York City, Los Angeles, Chicago, and beyond. Existing sidewalk widths, pedestrian/bicycle/vehicular volumes, transit access, ADA accessibility, parking availability, the character of adjacent land uses, and ease of maintenance are but a few factors influencing the design and application of Alternative Curbside Uses.	Through his Tactical Urbanism research and practice, team member Mike Lydon has done extensive research into the application of Alternative Curbside Uses in NACTO and non-NACTO cities. This approach to placemaking is most effective when developed as part of a district or citywide program systematizing the outreach and education approach, while designing to meet the varying needs of each block to which they are applied.
Design Vehicle/Wheel Base 	There are many intersections that were designed using a design vehicle with a wheel base in excess of 50', regardless of context. This has created a number of oversized intersections that allow vehicles to turn without slowing down and considerably increasing the distance that pedestrians must cross. Using the correct design vehicle is critical to safe intersection design and the design vehicle used must match the land use. Streets that serve industrial areas should use large trucks as a design vehicle; neighborhood commercial streets should use something much smaller.	The KAI Team works with private developers and public clients to design site frontages and street improvements that utilize appropriate curb radii for the vehicles regularly expected to turn at an intersection. We have worked with freight carriers to “test drive” new designs such as roundabouts and curb extensions before they are installed to increase understanding and buy-in.

GUIDE TOPIC	TOPIC UNDERSTANDING	APPLICABLE TEAM EXPERTISE
Pedestrian Crossing Warrants 	Pedestrians take the most direct and convenient path, balanced by the risks posed by choosing a particular route. The safest places to cross streets should be made the most convenient. In most cases, this will be at intersections. With few exceptions, every controlled intersection in an urban area should provide pedestrian crossings using high-visibility pavement markings. Where enhanced comfort is necessary, treatments including curb extensions, pedestrian refuge islands or strategies, such as leading pedestrian intervals give pedestrians a higher priority and improve safety. Pedestrian hybrid beacons, with accessible pedestrian signals, may improve safety for all pedestrians, while minimizing vehicular delay. Mid-block crossings should be considered where high volumes of pedestrians are crossing and where the crossing can be made safe. If a safe crossing is not achievable, the closest safe crossing should be made more convenient.	From projects to improve safety for students who walk to school to incorporating robust pedestrian improvements into a diverse range of projects such as Chicago Streets for Cycling and Jamaica (New York) Bus Improvement Study, SSE keeps the needs of pedestrians at the forefront in all projects. In Chicago's Pedestrian Plan, SSE recommended implementing leading pedestrian intervals at intersections with high pedestrian crashes caused by right-turning vehicles.
Curb Extensions 	Curb extensions (also known as “bumpouts” or “bulbouts”) extend the sidewalk out into the street, usually to the edge of the on-street parking lane. Curb extensions at intersections reduce pedestrian crossing distance, encourage slower vehicle speeds through roadway narrowing, and improve visibility for pedestrians and drivers. Curb extensions can also provide additional sidewalk space at busy intersections and space for ADA curb ramps.	The KAI Team has evaluated the feasibility of curb extensions at countless locations. The Team has also worked with jurisdictions to leverage investment in curb extensions to accommodate green infrastructure, improved bus stops, street furnishings, and other street improvements.

GUIDE TOPIC	TOPIC UNDERSTANDING	APPLICABLE TEAM EXPERTISE
Right-of-way/Yield Control vs. Stop/Signal Control 	In U.S. cities, the vast majority of intersections are governed by either 2-way stop control or traffic signals, with the use of all-way stop control generally confined to low-speed, low-volume residential neighborhoods, and Yield control rarely used. The selection of one of these four approaches to manage right-of-way assignment at specific intersections should reflect local factors such as speed, geometry, sight distance, traffic volume, context, and non-motorized activity, keeping in mind that each form of intersection traffic control impacts mobility and safety for motorists, pedestrians, and bicyclists. Traffic signals, while viewed by many as a panacea for intersection safety concerns, can have negative safety implications when used indiscriminately, such as increased traffic speeds and crashes, and unnecessarily delay all road users. Traffic signals also require considerable cost to install and maintain, versus stop signs, which have a relatively minimal cost.	Modern roundabouts provide an alternative to traditional intersections, and are increasingly being used by transportation officials in place stop signs and traffic signals. At suitable locations, roundabouts can provide significant safety and environmental benefits, while reducing delays for all road users and providing aesthetic enhancements. KAI led development of the first and second edition of <i>Roundabouts: An Informational Guide</i> and has evaluated the tradeoffs of signal, stop, and yield controlled intersection designs in jurisdictions nationwide.
Signal Timing and Operations 	The timing, phasing, and coordination of traffic signals impacts all modes. Well-planned signals reduce delay and unnecessary stops at intersections, thus improving traffic flow without roadway widening. Pedestrian signal indicators inform pedestrians when to cross at signalized intersections by providing WALK, flashing DON'T WALK, and DON'T WALK indicators. Pedestrian countdown displays inform pedestrians how long they have to cross a street before the signal changes.	Correctly located accessible pedestrian signals provide equivalent information to pedestrians with vision loss, and are essential considerations when implementing some signalization strategies such as leading pedestrian intervals, and exclusive pedestrian phasing. Accessible Design is at the forefront of research into accessible pedestrian signals and authored a best practice guide on the issue. KAI led development of the <i>Traffic Signal Timing Manual</i>. Staff are also actively involved in the signals committees of NCUTCD and TRB and have extensive experience implementing transit signal priority.

GUIDE TOPIC	TOPIC UNDERSTANDING	APPLICABLE TEAM EXPERTISE
Turn Restrictions 	Turn restrictions, whether they prohibit movements entirely or only during a specific time, impact vehicular mobility and operations but also can have tremendous benefits to pedestrian safety. For instance, outside of New York City, every city in the United States allows vehicles to turn right on red if there is not a sign posted. And while traffic engineers utilize the ability for vehicles to turn right on red to improve level of service results, it does not always make an intersection operate “better”, particularly for pedestrians. Leading pedestrian intervals are rendered useless when right turns are still permitted on red. The onset of an exclusive pedestrian signal is difficult or impossible for pedestrians who are blind to detect at an intersection that also permits right turn on red. Restricting turns can have significant impacts on pedestrian safety and intersection design.	As part of Chicago’s Pedestrian Plan, SSE recommended prohibiting right-turns on red in the Central Business District and other locations with high pedestrian volumes, such as near transit stations and pedestrian retail corridors, as well as studying the impact of restricting left-turns at complex intersections.
Alternative Intersection Performance Measures 	Jurisdictions that seek to improve pedestrian facilities or add dedicated bicycle or transit facilities to existing roads often find themselves limited by their own auto-oriented performance standards. Engineers and designers may not consider the possibility of removing travel lanes to accommodate multimodal facilities because it will cause an intersection to operate at level of service “D” or higher during the peak hour, even though vehicle delay is minimal during the remainder of the day.	KAI led research and development of the <i>Multimodal Level of Service Analysis for Urban Streets</i> methodology, which provides jurisdictions with equivalent level of service measures for transit, pedestrians, bicyclists, and vehicles. KAI has also worked with the Oregon Department of Transportation to evaluate and select additional alternative performance measures for planning and development review applications.

GUIDE TOPIC	TOPIC UNDERSTANDING	APPLICABLE TEAM EXPERTISE
Retrofitting Complex Intersections/Streets 	Intersection and street design in the twentieth century often resulted in streets that allowed large numbers of cars to travel at high speeds, typically at the expense of pedestrians and bicyclists. Retrofitting such streets to better meet the needs of a range of users frequently involves reexamining a street's vehicle capacity, narrowing excessively wide travel lanes to calm traffic and shorten pedestrian crossings, normalizing intersections by removing channelized turn lanes and realigning streets to meet at less obtuse angles, and deploying a range of other traffic calming techniques. As a result, pedestrian and vehicle conflict points are reduced, pedestrian crossing distances are shortened, vehicle speeds are slowed, and excess street space is reclaimed for pedestrian, bicycle, or open space purposes. For instance, the removal of channelized turn lanes can sometimes provide an opportunity to create a small, retrofit public plaza.	Sam Schwartz Engineering has applied these techniques in numerous projects ranging from the Old Fulton Street and Atlantic Avenue gateways to the new Brooklyn Bridge Park to the redesign of Chicago's Logan Square.
URBAN STREET DESIGN TYPES		
Boulevards 	Boulevards serve as major arterials in urban settings and typically provide broad functionality for motorists, transit passengers, pedestrians, and bicyclists and, often, stormwater as well. Given their large traffic volumes, meeting the needs of all users, particularly the most vulnerable, is a careful balancing act. These streets also traverse a range of land uses, and ensuring that the street environment is in sync with and enhances rather than detracts from the built environmental requires careful planning and design.	Schwartz Engineering is well-versed in urban boulevard design, ranging from Water Street, one of the primary commercial corridors in Lower Manhattan, to Spring Garden Street, one of the key east-west connectors in central Philadelphia. Along Spring Garden Street, the redesigned corridor includes narrowed travel lanes to reduce traffic speeds, providing for a wider center median accommodating a landscaped bikeway and providing a pedestrian refuge space, reconstructed corners including neckdowns to shorten pedestrian crossing distances, bus bulbs to improve bus operations, and underground stormwater infiltration trenches.

GUIDE TOPIC	TOPIC UNDERSTANDING	APPLICABLE TEAM EXPERTISE
Downtown/CBD Streets 	Street design is often times a critical component in the success of a downtown or central business district. Downtowns that are thriving economically tend to have traffic operating at safe speeds and are designed to encourage pedestrian activity. On the other hand, many downtowns that have streets designed solely to make it as easy as possible for vehicles to get in and out of are struggling. The design of streets has a tremendous impact to the economic success of downtowns and central business districts.	SSE has worked in a number of cities, villages, and towns nationally to make their downtown streets safer and more pedestrian friendly. The experience varies from dense urban neighborhoods, such as Wicker Park in Chicago to the College Hill neighborhood of Macon, Georgia, to suburban downtowns such as Joliet, IL, and Hamtramck, MI.
Neighborhood Commercial Streets	In urban areas, neighborhood commercial streets serve the daily needs of nearby residents. These streets often have both local and regional destinations. Because people may not be traveling very far, many will be walking or biking. At the same time, people will use these streets for traveling through or between neighborhoods. Neighborhood commercial streets will need a combination of elements to accommodate the various users within the context of a commercial street. For example, commercial streets may need wider sidewalks or benches for pedestrian comfort or a bike corral to serve bike parking needs. Many people with disabilities choose to live on or near neighborhood commercial streets because of the proximity to public transit and to goods and services they can access easily.	
Neighborhood Connectors 	Neighborhood Connectors are often the life blood of thriving communities. They act as transportation conduits, and often provide basic commercial services to the surrounding population. These streets also serve as primary transit, bicycle, pedestrian and vehicle routes. Balancing these uses within often constrained right-of-ways can be challenging.	

GUIDE TOPIC	TOPIC UNDERSTANDING	APPLICABLE TEAM EXPERTISE
Residential Streets 	Residential streets serve as the foundation of our transportation network, they help establish community identity, encourage physical activity, interaction between neighbors and provide for active transportation.	Alta's experience creating quiet streets and working on the NACTO Bicycle Boulevard section of the <i>Urban Bikeway Design Guide</i> and the <i>U.S. Traffic Calming Manual</i> positions the team to provide design guidance for high quality residential streets.
Pedestrian Priority Shared Commercial Streets  <i>(Photo credit: Fai C)</i>	Pedestrian Priority Shared Commercial Streets have a varied history of success and failure in the United States. Their initial proliferation occurred in the 1960s and early 1970s, a time when political, demographic, and economic shifts challenged the health of our country's downtowns. Cities of all sizes reacted by pedestrianizing their main streets to compete with suburban malls. Always well intended, their time of application, quality of design, and management too often resulted in their decline and subsequent removal. Today conditions have changed. Many of America's core cities have experienced an influx of new investment, bringing thousands of new residents, businesses, and transit options. As a result, cities are looking to capture more value through the prioritization of pedestrians along select commercial/mixed-use thoroughfares. New York City has demonstrated that an incremental reclamation utilizing temporary materials is a political and economically palatable strategy leading to long-term change and increased investment. Moving forward, proper design with consideration of the needs of all users, including pedestrians with disabilities, phasing, integration, and management practices will define the long-term success of this potentially high-value street type.	KAI incorporated design guidance for curbless shared commercial streets (also known as "Festival Streets") and shared residential streets in the <i>Philadelphia Complete Streets Design Handbook</i>.

GUIDE TOPIC	TOPIC UNDERSTANDING	APPLICABLE TEAM EXPERTISE
Home Zones/Shared Streets 	Home zones were pioneered by the Dutch to better balance the needs of vehicular traffic and everyone else who uses the street, including pedestrians, cyclists, business owners, and residents. The Home Zones concept is implemented by physically adding traffic calming elements to streets and roads in an area, typically a residential neighborhood, to encourage drivers to drive at lower speeds. Traffic calming elements can include vertical measures, such as raised intersections, speed tables, speed humps; horizontal measures, such as curb extensions, chicanes, and realigned intersections; and road narrowing measures, such as gateways, curb extensions, and reduced lane widths. One study documenting the use of Home Zones in England reveals a collision reduction of 42%. Shared Streets are typically narrow roadways without curbs or traffic demarcations in residential or commercial districts. Both concepts are intended to better negotiate the competing needs of street users by reducing vehicular speed and maximizing the safety and comfort of pedestrians and bicyclists. While the traffic calming techniques and application of Home Zones and Shared Streets will vary by context, all applications must ensure that accessibility for emergency vehicles, deliveries, people with limited mobility/disabilities, and transit (where applicable) is not compromised. While Home Zones/Shared streets are not yet a commonly found in the United States, they are now being pilot tested and branded in New York City as “Slow Zones” -traffic-calmed residential streets with 20 mph speed limits. Shared Streets may also be found in select locations throughout the United States, but have yet to be addressed comprehensively by a peer-reviewed design manual such as the NACTO <i>Urban Street Design Guide</i>.	Home Zones/ Shared Streets have been known to reduce safety and wayfinding information to pedestrians with visual impairments. (See publications detailing experiences of pedestrians with visual impairments in Holland the UK and New Zealand.) Team member B. Bentzen has extensive contacts with organizations of and for people with visual impairments in countries making use of shared streets. Some of these countries have researched ways to make wayfinding information more accessible in the context of shared streets. While solutions in Europe and Australasia may not necessarily be optimal in the United States, they will nonetheless be helpful guides for our consideration.

GUIDE TOPIC	TOPIC UNDERSTANDING	APPLICABLE TEAM EXPERTISE
Green Alleys/Streets 	A street that uses vegetated facilities to manage stormwater runoff at its source is referred to as a Green Street. A Green Street is a sustainable stormwater strategy that can meet regulatory compliance and resource protection goals by using a natural systems approach to manage stormwater, reduce flows, improve water quality and enhance watershed health. Our team has found that Green Streets provide multiple community benefits, including; enhanced pedestrian safety, street beautification, as well as, various stormwater management goals.	Our team members have had lead roles on many Green Street planning and design projects that have been constructed. Our team has been involved in many of these projects from initial public involvement phase through post-construction evaluation phase. Our collective Green Street experience has includes several street types: highways; major arterials; boulevards with medians; downtown/ CBD streets, freight district streets; neighborhood collectors, and residential streets. Our team also has experience with Shared Facilities where stormwater facilities treated runoff from both private property and the public ROW.
URBAN INTERSECTION TYPES		
“Retrofit” Public Plazas at Intersections 	The normalization of intersections to remove channelized turn lanes often provides the opportunity to create a retrofit public plaza. Similar opportunities may exist where streets with excess capacity are reconfigured to reallocate the excess vehicular space to pedestrians. These new spaces can be configured quickly as pilot plazas using materials such as gravel-embedded epoxy surface treatments, planters, chairs and tables, etc. In addition to providing open space in areas that may have a shortage, such plazas can benefit nearby businesses with improved aesthetics and increased foot traffic.	New York City has been at the forefront of the development of retrofit public plazas, and SSE has advanced the concept in a number of our projects there, including plazas at the following locations: • W. 14th Street and Ninth Avenue, Manhattan • Gansevoort Street and Ninth Avenue, Manhattan • Water Street and Whitehall Street, Manhattan • Atlantic Avenue and Furman Street, Brooklyn

GUIDE TOPIC	TOPIC UNDERSTANDING	APPLICABLE TEAM EXPERTISE
Intersections near Transit Hubs and Stations 	At intersections near transit hubs and stations, accommodations must be made for large volumes of arriving and departing transit vehicles, as well as pedestrians and cyclists. With all of this activity converging in one location, in addition to general vehicular traffic, design issues include managing congestion, determining priority movements, and allocating scarce roadway space. Queue jumps and Transit Signal Priority can be used to speed bus service in relation to general traffic. Where this is infeasible, simply improving the level of service for movements made by transit vehicles can also provide a benefit to other general traffic making these movements. In the case of an on-street hub for bus service, high bus volumes can sometimes lead to buses delaying other buses. In this case, stop ordering must be carefully considered. Unnecessary turning movements may also need to be banned in order to reduce turning conflicts and to achieve better intersection throughput while giving more green time to transit movements and pedestrians. To accommodate large numbers of pedestrians, crosswalk enhancements, curb extensions and other pedestrian treatments should also be considered. If available sidewalk space for bicycle parking is insufficient, additional parking may be accommodated in bike corrals located in place of existing vehicular parking spaces. Particular attention must be paid to provisions for pedestrians with disabilities, many of whom are dependent on public transportation.	SSE recommended many of these ideas to speed buses in the vicinity of the Canarsie Terminal in Brooklyn, New York. KAI has implemented transit signal priority and led transit-oriented development mobility studies in multiple locations throughout the Mid-Atlantic.

GUIDE TOPIC	TOPIC UNDERSTANDING	APPLICABLE TEAM EXPERTISE
Intersections near schools, parks, waterfronts, and key destinations 	Certain destinations are more likely to draw pedestrians and bicyclists than others. They may draw specific populations or draw pedestrians in masses. Intersections are often the weak link for people traveling by foot or by bike. One intimidating intersection along the route could prevent a child from walking to school or a family taking a bike ride to a park. The intersections surrounding key destinations or serving as access points should be designed to improve safety and provide for convenient movement of the likely users, especially the most vulnerable likely users. Near schools, high-visibility crosswalks, curb extensions, and/ or leading pedestrian intervals with accessible pedestrian signals may be necessary. Near senior housing or senior centers, the walk signal may need to be lengthened. Special bike treatments may be needed to aid bicyclists turning into a park or to a riverfront.	Our team members are well-versed in designing for all desired travelers and recognize that certain uses will attract more pedestrians and bicyclists than others. Some of our experience includes a pedestrian study at Carnegie Mellon University, and various campuses, destination resorts, and mixed-use development and master plans

If desired, the team will also produce a brief memo documenting any emerging street design issues or approaches discovered through the literature review that are beyond the scope of the current guide, but NACTO may have interest in exploring further as part of subsequent updates to the guide.

After completing the literature review and annotated outline, the Team will conduct additional targeted outreach for case studies to fill knowledge gaps and illustrate successful applications of street and intersection design approaches to be included in the Guide. Case studies will identify lessons learned, engineering, and public involvement approaches. Outreach may also be used to gather quotes or individual profiles documenting how new design approaches have impacted the community, people's views of transportation, etc.

TASK 1 DELIVERABLES:

- Draft and final annotated outline of urban street treatments for inclusion in the Guide.
- Memo documenting emerging street design issues for future exploration.

Task 2: Web Development Specifications and Mock-Up

Over the past two years, Alta staff has maintained and optimized NACTO website content through the Wordpress website portal. This experience will allow our Team to immediately and efficiently begin work creating graphic layouts that will seamlessly integrate with the existing NACTO website architecture.

During the Kickoff Meeting with the Project Oversight Committee, the Team will discuss the audience, key content, and functionality of the *Urban Street Design Guide*, focusing on desired improvements or derivations from the existing *Urban Bikeway Design Guide* site. Based on the feedback received, we will develop three graphic layout options for the project home page and a sample subpage. Our Team will naturally explore a format that provides structural and graphic consistency with the *Urban Bikeway Design Guide*, similar to that shown in Figure 1. We will also explore two additional concepts that provide a different user experience while maintaining the feel and usability that make the existing NACTO website so popular.

The Team will provide the web design options to the Committee for review at least one week in advance of the third monthly conference call. All decisions regarding the graphic content, functionality and intended audiences will be discussed collaboratively with the Project Oversight Committee. We also expect to work closely with the NACTO Website Administrator for any larger changes that would impact the way the site functions as a whole. After identifying an approved web design concept, we will submit a memo documenting the approved design, including technical implementation details, site index and wireframe, treatment overview and sub-page mock-ups.

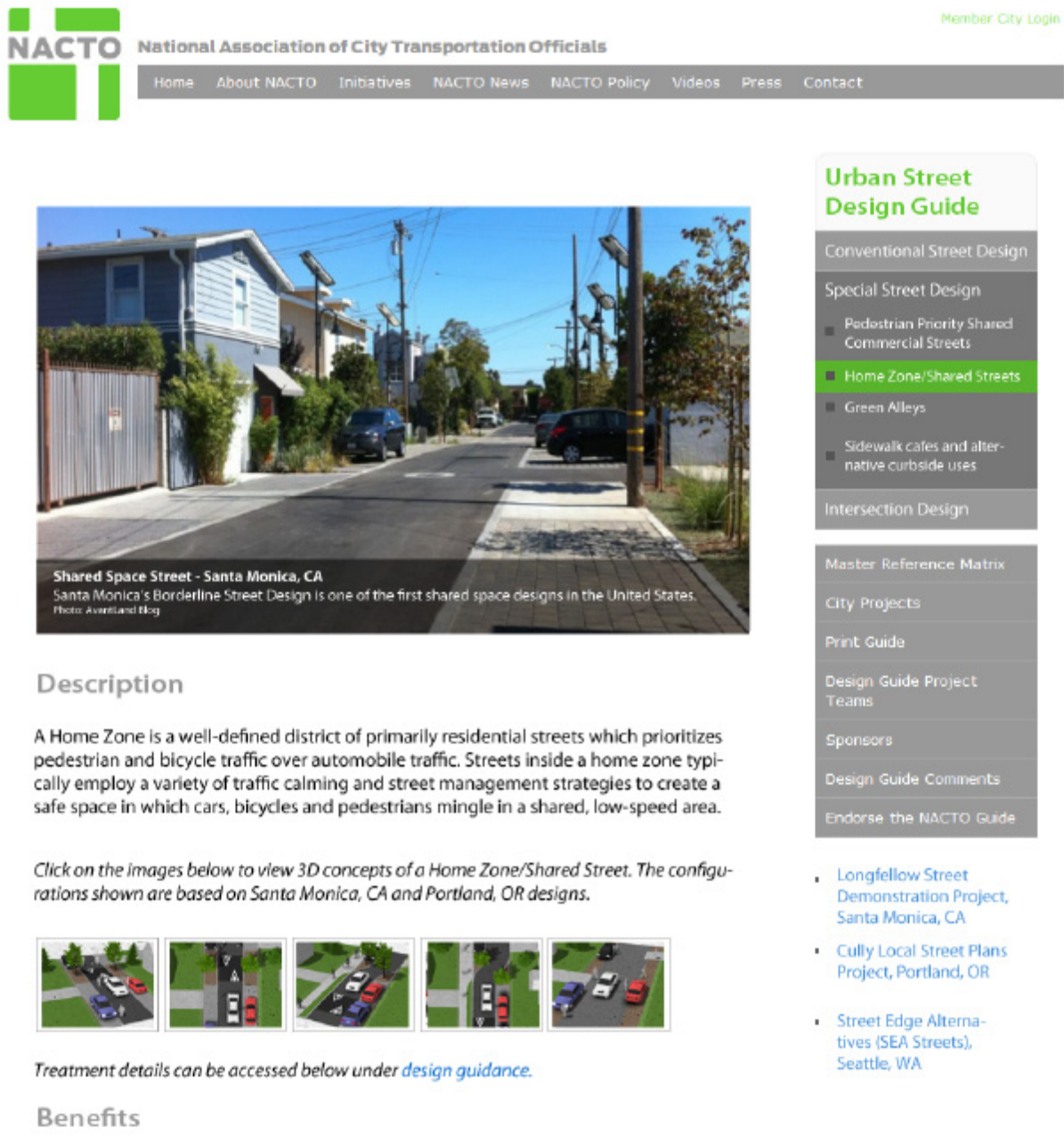


Figure 1 Example Street Type Webpage Layout

TASK 2 DELIVERABLES:

- Three graphic homepage and subpage layouts.
- Memo documenting approved design, including technical implementation details, site wireframe, treatment overview and sub-page mock-ups.

Task 3: Develop Draft Content for Three Street/Intersection Types

The KAI Team will utilize our experience crafting design guidelines for numerous cities to create draft website and print guide content for the three initial street and intersection types identified in the RFP. The initial three street and intersection types identified in by NACTO include:

- Home zones/Shared Streets
- Downtown/CBD Streets
- “Retrofit” Public Plazas



The KAI Team has evaluated many design options for downtown/CBD streets, including 1-way/2-way conversions, transit lanes, and signal progression.

Informational materials to be included with each street/intersection type summary will include:

- Design summary, including physical dimensions, roadway characteristics, and thresholds
- Relevant research
- Safety considerations
- Relationship to multiple modes (including pedestrians, transit, freight vehicles, and private vehicles)
- Intersection operations
- Images of the street /intersection type showing a real life example, where possible, or a photo rendering
- A graphic utilizing an interactive 3D rendering (consistent with, or improving upon the Module II graphic approach to the NACTO *Urban Bikeway Design Guide*), typical cross section, and/or a plan view drawing for the street

The Team will work with the Project Oversight Committee to refine the above informational materials for each of the three street/intersection types. The draft content will be provided to the Committee for review one week before the fourth monthly. The Team will revise the content based on Committee feedback. At the October 24-26 NACTO Designing Cities conference the Team will provide assistance, as needed, presenting and leading a work session to obtain feedback on the draft content.

TASK 3 DELIVERABLES:

- Draft content for three street/intersection types.
- Graphics/images/renderings associated with each street/intersection type.
- Assistance, as needed, presenting draft content and leading a work session at the NACTO Designing Cities Conference.

Task 4: Develop Draft Content for Two Critical Design Issues

The KAI Team will utilize our experience crafting design guidelines for numerous cities to create draft website and print guide content for the two critical design issues identified in the RFP. The initial two issues identified in by NACTO include:

- Lane Width
- Pedestrian Crossings

The critical design issue content will follow the same format developed and refined for the initial three street/intersection type summaries in Task 3. Draft content for the two critical issues will be provided to the Committee for review one week before the fifth monthly meeting.

TASK 4 DELIVERABLES:

- Draft content for two critical design issues.
- Graphics/images/renderings associated with each street/intersection type.



Pedestrian plazas help to “activate” urban streets and create a place for recreation, socializing, and public art.

Task 5: Print Format for Urban Street Design Guide

Utilizing the content and approved web design concept developed in Tasks 2 through 4, the KAI Team will develop two design template options for a print-version of the *Urban Street Design Guide*. The print version of the Guide will provide a document featuring the critical design issues, street types, and intersection types found in the web-based guide, with supporting text in place of the web-based interactive elements. Each treatment will be provided complete with references and graphics, and will be developed in a modular format to allow for additional sections to be added to the printed document. The two print design options will be provided to the Project Oversight Committee for review one week prior to the fifth monthly meeting.

The source files for the printed version of the Guide will be in Adobe InDesign format.

TASK 5 DELIVERABLES:

- Mock-up of print design guide, showing graphic layout and sections
- Present 2 design options

PHASE 2: FULL CONTENT DEVELOPMENT AND LAYOUT

Upon approval by the Project Oversight Committee, the KAI Team will proceed with full web and print-based content development based on the preferred designs produced in Phase 1.

Task 6: Full Content Development

Utilizing the critical issue and street/intersection type outlines developed in Tasks 3 and 4, the KAI team will develop similarly formatted content for the remainder of the treatments identified in the RFP and agreed upon through coordination with the Project Oversight Committee. We will utilize all of the reference material collected in Task 1, combined with our collaborative process with the Committee, to produce easy-to-understand and supportable guidelines for each treatment so that they can be used by cities nationwide.

TASK 6 DELIVERABLES:

- Develop content for all street and intersection types and design issues identified in Phase 1

Task 7: Development, Testing, and Revision of Web Site

As the *Urban Street Design Guide* takes shape, Alta will test the site for compatibility with all major browsers on the Mac and PC format. Other mobile devices will also be tested such as the iOS and Android operating systems. We will trouble shoot any glitches with our IT staff, and/or the NACTO Webmaster.



The Urban Street Design Guide will incorporate and cross-reference the design treatments and guidance included in the Urban Bikeway Design Guide.

TASK 7 DELIVERABLES:

- Fully develop website using approved content developed in Task 6
- Performance testing
- Incorporate oversight committee comments

Task 8: Layout of Print Guide

Utilizing the approved designs for the print layout developed in Task 5, the KAI Team will produce a complete print version of the NACTO *Urban Street Design Guide* using the content developed for all critical design issues and street/intersection types outlined in Subtask 1.2 and Task 6. The print version of the guide will also contain a glossary, central listing of all references cited, table of contents, and acknowledgments.

The print document will eventually be made available as a stand-alone document for purchase and as an Adobe pdf that can be downloaded and printed through the NACTO website. Similar to the print version of the *Urban Bikeway Design Guide*, the *Urban Street Design Guide* will be developed to be modular in composition so that individual treatments can be updated and revised as necessary in the future and substituted with minimal effort. The final print document will be composed in Adobe InDesign, of high aesthetic value, and simple to navigate by the end user.

TASK 8 DELIVERABLES:

- Layout complete print guide using approved content developed in Task 6

Task 9: Website Roll-Out, Media Work, and Support

A targeted media outreach effort will be conducted collaboratively with NACTO to release the *Urban Street Design Guide*. Since the new Guide will be a groundbreaking, innovative element of change in our cities, the website roll-out will be targeted to reach a wide audience and extend the reach of the project.

The KAI Team will provide draft media releases, graphic content, key quotes from NACTO leadership and related materials for this roll-out. This will be a multi-media effort that includes web-based text, video, and images for release in social media, via the NACTO website, traditional news media, and through innovative channels.

TASK 9 DELIVERABLES:

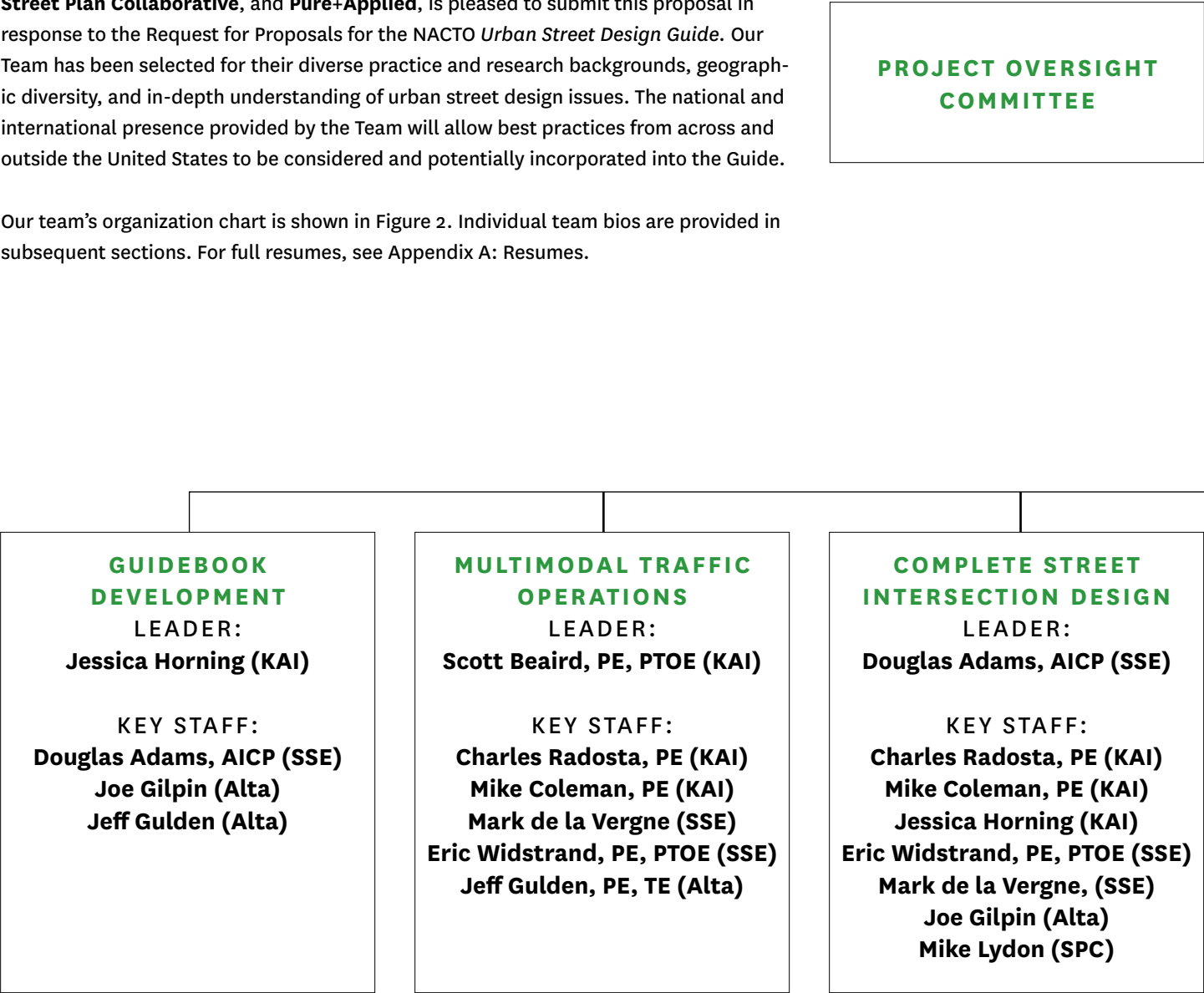
- Develop presentation
- Other outreach and communications support as needed

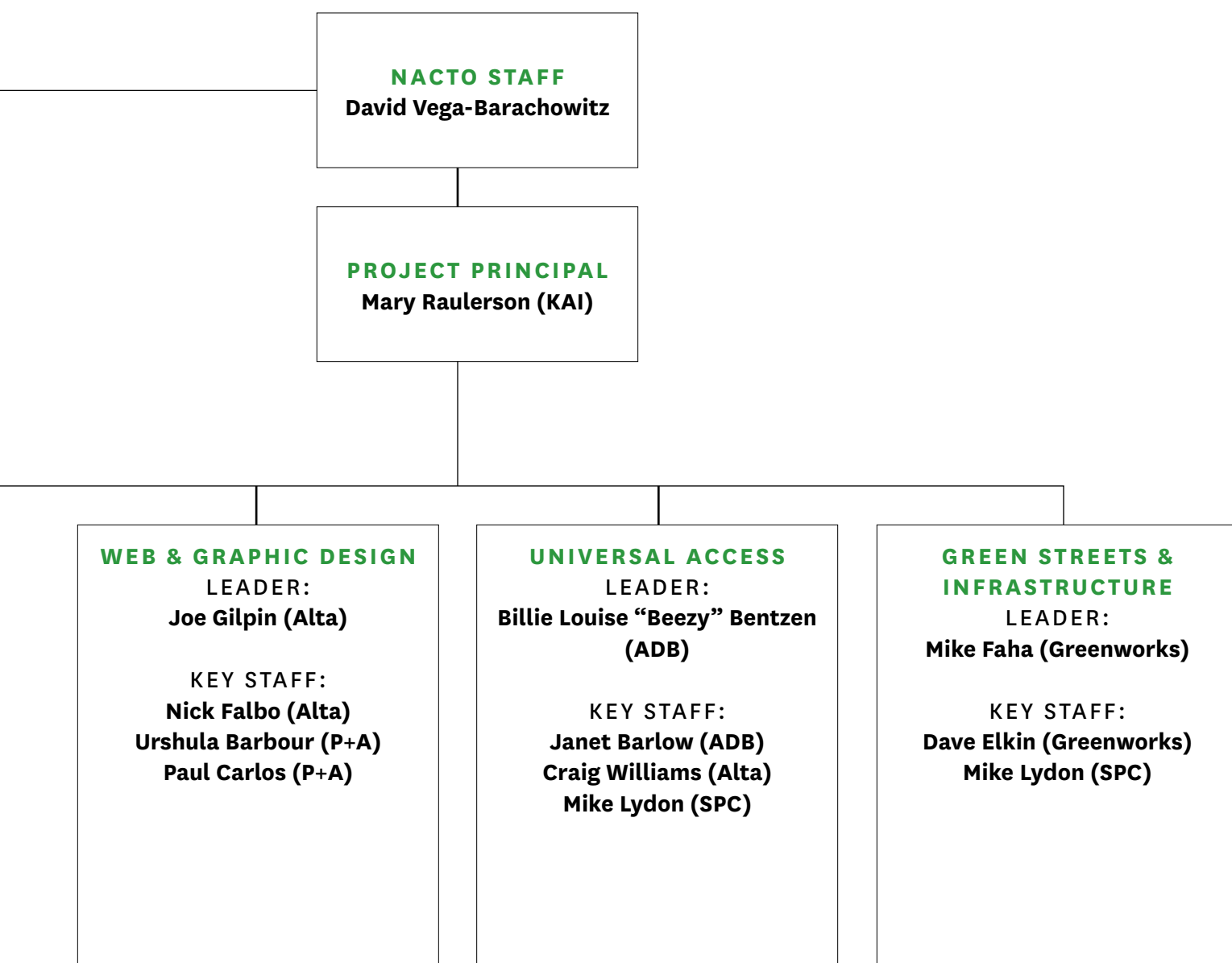
Team Profile

Kittelson & Associates, Inc. (KAI), in association with **Sam Schwartz Engineering (SSE)**, **Alta Planning + Design**, **Accessible Design for the Blind (ADB)**, **Greenworks**, **Street Plan Collaborative**, and **Pure+Applied**, is pleased to submit this proposal in response to the Request for Proposals for the NACTO *Urban Street Design Guide*. Our Team has been selected for their diverse practice and research backgrounds, geographic diversity, and in-depth understanding of urban street design issues. The national and international presence provided by the Team will allow best practices from across and outside the United States to be considered and potentially incorporated into the Guide.

Our team’s organization chart is shown in Figure 2. Individual team bios are provided in subsequent sections. For full resumes, see Appendix A: Resumes.

Figure 2 KAI Team Organization





Team Profile

Kittelson & Associates, Inc.

www.kittelson.com



“KAI has a unique talent for blending the sophisticated analytics of traffic operations with progressive street design that champions transit access and walkability.”

Christopher Delfs, Citywide Planner, DC Office of Planning (formerly of DDOT)

Kittelson & Associates, Inc. (KAI) provides comprehensive transportation engineering, planning, and research services to government and private organizations. Founded in 1985, KAI is made up of 12 national offices within 8 regionally-diverse states. Our staff is united, however, by collective expertise: KAI’s team of skilled professionals and international experts offer decades of progressive research, technological innovation, and a diverse portfolio of industry-leading work.

Our work is designed to link the goals and missions of groups both within and outside of an agency with technical information and data to reach win-win solutions. We have frequently authored the guidebooks used by our clients, researched the best practices found beyond our direct experience, and enjoyed the places that our work has helped to create. We recognize that healthy, livable communities depend on efficient, active, and safe multimodal transportation that is cost-effective to manage, operate, use, and enhance over time.

KAI successfully transforms core areas within various communities into modern hubs where pedestrians, bicyclists, and streetcars share space equally with the automobile. We have helped these communities recast their transportation systems with this mix of travelers on streets and transit in ways that in bygone times helped to create the very energy of downtowns, provide independent living choices for young and old alike; and encourage new and existing commerce.

KAI was a member of the team that developed NACTO’s *Cycling For Cities: Urban Bikeway Design Guide* and has completed numerous multimodal transportation planning and engineering projects in NACTO-affiliated cities and beyond. We are eager to continue our work with NACTO and help reshape the ways that urban streets will be designed.



LEFT: Philadelphia Complete Streets Design Handbook
ABOVE: DC Innovative Bicycle Facility Evaluation



LEFT: Rosa Parks Way Traffic/Bike Signal Design
ABOVE: Portland Bikeway Implementation

Sam Schwartz Engineering

www.samschwartz.com



Founded in 1995, **Sam Schwartz Engineering (SSE)** is a 100-person engineering and transportation planning firm with offices in New York City, Chicago, Washington, DC, Newark, Tampa, and Los Angeles. SSE specializes in developing comprehensive, context-sensitive traffic and transportation planning, engineering, and design services for simple to complex projects for public and private sector clients all over the world. SSE identifies transportation and traffic impacts and provides creative, multi-modal plans that are grounded in technically rigorous analysis and both industry-accepted and cutting-edge design standards. They strive to balance the needs and improve the quality of life of all users, including drivers, pedestrians, transit riders, and cyclists. Clients trust SSE to work collaboratively with diverse communities and stakeholders as a problem solver and design mediator to generate implementable, innovative, and sustainable recommendations.

SSE's specialized staff are leaders in active transportation planning and design, traffic engineering, and multi-modal transit planning. Understanding the challenges of working in dense urban environments where space is at a premium, SSE applies progressive transportation planning techniques, combining industry-transforming concepts, to each project. Their ability to apply expertise honed from urban transportation planning and engineering in any setting results in the most efficient designs and solutions possible. SSE uses its proficiency with traffic engineering to improve transit, bike, and pedestrian conditions while minimizing disruption to vehicular traffic. Through a collaborative working environment, they develop creative traffic engineering solutions that respond to each unique situation and, in many cases, can also improve the functioning of vehicular traffic.

“SSE went above and beyond in...changing the way we think of our streets — not just as arteries for traffic, but also as public space for people that can improve the community’s quality of life, address public health issues, and improve the city’s economy.”

**Greg A. Weitzel, Director, Allentown
Department of Parks and Recreation**



**Brooklyn Bridge Park, Furman St at
Old Fulton St, Brooklyn, NY**



Hylan Blvd, Staten Island, NY



Water Street Retrofit Plaza, New York, NY



Logan Square, Chicago, IL



Vesey Street, New York, NY

“No firm knows pedestrians like Sam Schwartz Engineering. Our neighborhood streets now meet the needs of all users: pedestrians, transit riders, bicyclists, and motorists.”

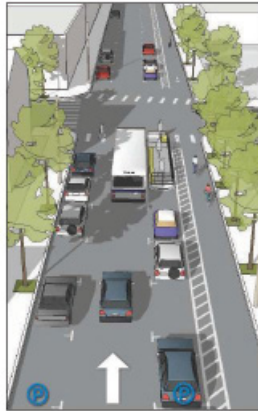
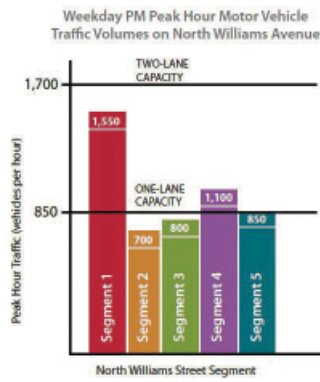
**Jo Hamilton, Former Chair, Manhattan
Community Board 2**

Alta Planning + Designwww.altaplanning.com

Alta Planning + Design is North America's leading multi-modal transportation firm that specializes in the planning, design and implementation of bicycle, pedestrian, greenway, and trail corridors and systems. Founded in 1996, Alta has grown to over 90 staff in 20 offices and an international workload. Alta's mission is to create active communities where bicycling and walking are safe, healthy, fun, and normal daily activities.

Now more than ever, communities are realizing the inherent value that well-designed streets and streetscapes have as the centers of economic and social life in our neighborhoods and downtown areas. Alta's landscape architects, planners, and engineers work to create holistic solutions for urban transportation corridors that maximize capacity and quality of service for all modes, using the latest models and methods. Alta's expertise in innovative bicycle facilities and parking, streetscape design, pedestrian safety and circulation, on-street parking management, and neighborhood greenway planning and design informs our design guidelines, providing easy to understand and useful information for city agency staff.

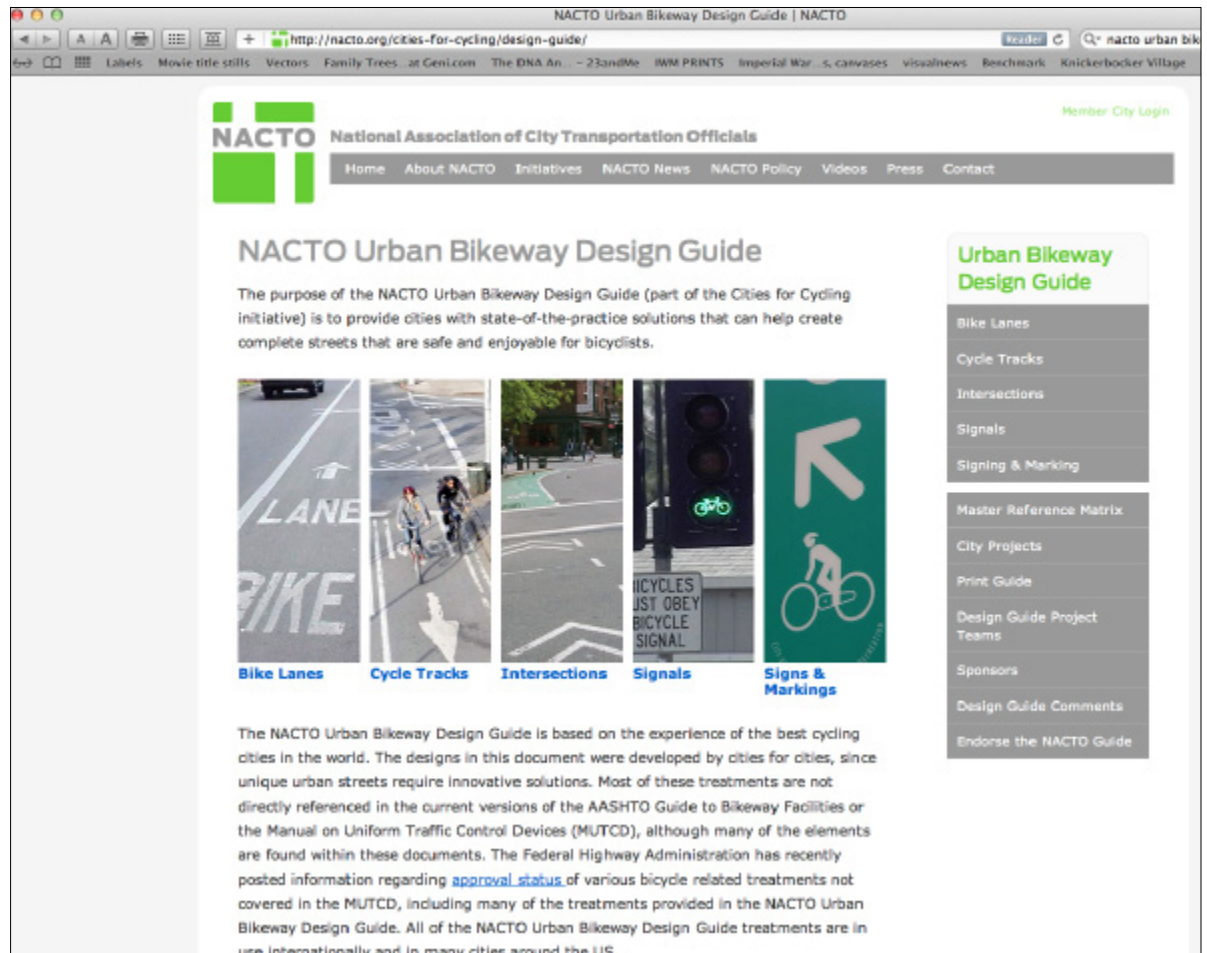
Alta staff members are at the forefront of the sustainable transportation movement. They strive to make biking, walking, and mass transit an integral part of staff members' daily lives. Alta is proud to be a founding partner of the NACTO (National Association of City Transportation Officials) Cities for Cycling Project, for which we helped develop the *Urban Bikeway Design Guide*. They are active in the Association of Pedestrian and Bicycle Professionals, the Institute of Transportation Engineers, the Transportation Research Board, and are conducting national studies for the U.S. Department of Transportation.



ABOVE: NACTO Bike Boulevard Design Guidance

LEFT: Portland N. Williams Ave. Safety and Operations Project

BELOW: NACTO Urban Bikeway Design Guide Website



GreenWorks

greenworkspc.wordpress.com



GreenWorks (GW) is a Portland, Oregon based landscape architecture firm that has focused for over 20 years on restoring the health of ecosystems and communities within urban watersheds. With a clear objective of embedding natural processes within projects, GreenWorks helps cities embrace green infrastructure through a wide range of methods. Their comprehensive on-the-ground project experience with re-writing code, writing low-impact-development handbooks, developing construction and standard drawings, and community planning has cemented GreenWorks as a leader in Portland's green infrastructure movement.

GreenWorks' on-the-ground experience includes the design and construction of over 20 green street projects and their related public involvement efforts. Their work on green streets within the public right-of-way includes design for integrated pedestrian amenities, parking, utilities, native plant material, stormwater planters, and site-specific sustainable strategies. This thorough integration of sustainable design and public amenities is a key distinction of their work.

GreenWorks has led many green infrastructure planning projects for cities throughout the Pacific Northwest. Their focus centers on client and stakeholder needs, helping to collaboratively and holistically define visions into successful plans that result in vital communities both economically and environmentally. Specific experience includes the integrated design of streetscapes, scenic byways, gateway concepts, environmental restoration, stormwater management and trail and recreational amenities.

GreenWorks is familiar with many of the critical barriers of implementing low impact development approaches. They have experience in developing codes and standards for user-friendly low impact development approaches.

“GreenWorks found opportunities to create spaces that can buzz with activity and boost local business... which transformed an industrial area by incorporating art, stormwater features, and connecting neighborhoods to the riverfront.”

Linda Dobson, Division Manager of Sustainable Stormwater Management, City of Portland Bureau of Environmental Services



**Portland, OR – 12th/Clay Bike Stop Bar
Stormwater Improvements**



Taron Bioswales and Curbless Street



**Beaumont Village Lofts Stormwater
Planters**



**Tuluatin, OR – 124th Avenue Green Street
Median**



Warner Milne Pervious Sidewalk

Accessible Design for the Blind

www.accessforblind.org



Accessible Design for the Blind (ADB) is committed to making travel safer for pedestrians with disabilities through research, consultation, education and advocacy. Its principals have a long history of teaching safe travel and street crossing techniques to pedestrians who are blind or who have low vision, many of whom also have cognitive, mobility, or hearing impairments. Building on this direct service background, they have participated in an extensive research program designed to make the built environment more accessible to pedestrians with disabilities.

ADB Principals Billie Louise (“Beezy”) Bentzen and Janet M. Barlow are Certified Orientation and Mobility Specialists who authored *Accessible Pedestrian Signals: A Guide to Best Practices*, *Detectable Warnings: Synthesis of U.S. and International Practice*, and numerous articles and papers on accessibility issues. They have been involved with standards development as members of the Signals Technical Committee of the National Committee on Uniform Traffic Control Devices, the American National Standards Institute Committee A117 on Accessible and Usable Buildings and Facilities, the Public Rights-of-Way Access Advisory Committee of the U.S. Access Board, and The International Organization For Standards (ISO) Technical Committee on Assistive Products for Persons with Disability.

ADB regularly presents seminars on access issues for pedestrians who are blind or who have low vision at conferences of the Transportation Research Board, the Institute of Transportation Engineers, the Association for Education and Rehabilitation of the Blind and Visually Impaired, the American Council of the Blind, and other organizations, and have written extensively on the topic. Each ADB Principal has over twenty-five years of committed experience in teaching, training, presentation, writing, and researching safe travel for pedestrians with disabilities.



Detectable Warnings: Synthesis of U.S. and International Practice

Accessible Pedestrian Signals

title stills Vectors Family Trees...at Geni.com The DNA An... - 23andMe IWM PRINTS Imperial War...s, canvases visualnews Benchmark Knickerbocker Village

http://www.apsguide.org/ Google

Accessible Pedestrian Signals | A Guide to Best Practices

[about](#) | [site map](#) | [contact](#)

Chapter 1: Introduction
Chapter 2: Travel by Blind Pedestrians
Chapter 3: Understanding Traffic Signals
Chapter 4: Features of APS
Chapter 5: When to Install APS
Chapter 6: Designing APS Installations
Chapter 7: Installation & Operation
Chapter 8: Public Education
Chapter 9: U.S. Case Studies
Chapter 10: International Case Studies
Appendix A: Current Guidelines
Appendix B: Product Information
Appendix C: Research on APS
Appendix D: Prioritization Tool Instructions and Forms
Appendix E: Glossary
References
Resources
Abbreviations

[APS Quick Info](#)
 See a summary of guidance on APS features and installation.

[APS Guide](#)
 Download the full guidance document in printable PDF form

[Optimal APS Location](#)
 Learn about appropriate locations for installing APS.

[Webinar](#)
 Listen to two presentations on APS-related topics

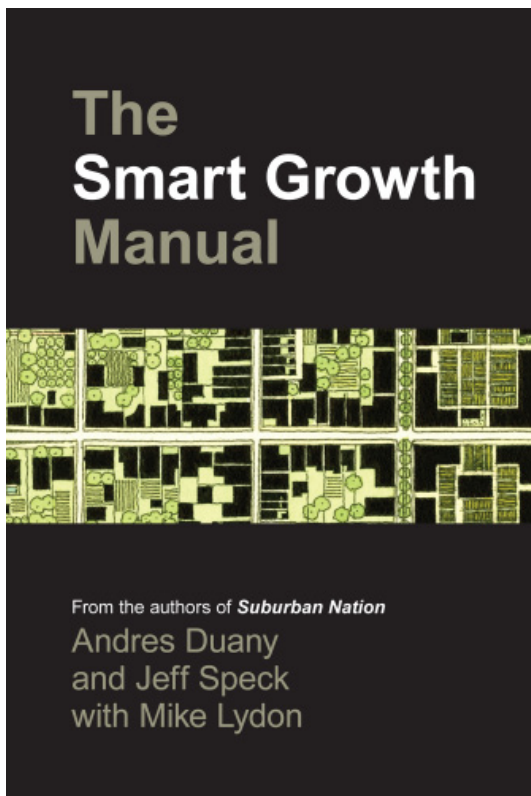
[APS Prioritization Tool](#)
 Find out about a tool to assist in prioritizing APS installations at existing intersections.

[Common installation problems](#)
 Learn about 15 of the most common APS installation problems

Street Plans Collaborativewww.streetplans.org

Founded in Miami Beach in 2009, **Street Plans Collaborative (SPC)** is an interdisciplinary urban planning and design firm with offices in Miami and New York. They thrive upon collaborating with clients, partners, and other like-minded organizations to improve the quality and function of the built environment. SPC seeks to improve the balance of multi-modal transportation options and to create successful public spaces as a means to creating more competitive and sustainable 21st century towns and cities. They attempt to fulfill this mission by working at the intersection of transportation, land use, and urban design in cities and towns across the United States.

The Street Plans Collaborative places a high value on research, writing, and best practice communication. The firm's projects, writings, and advocacy work have been featured in *The New York Times*, CNN Headline News, NPR, *The Miami Herald* and dozens of other national online and print publications. The company is currently working on projects in New York City, Miami, Miami Beach, Raleigh, El Paso, and St. Louis.



The Smart Growth Manual



ABOVE: Open Streets Project Website

BELOW: Miami Bicycle Master Plan Implementation



Pure+Applied

www.pureandapplied.com

Pure+Applied

Pure+Applied (P+A) is multidisciplinary design studio committed to projects that enrich and educate communities. A NYC SBS-certified WBE firm (51% female-owned, 49% minority owned) incorporated in 2002, P+A works primarily with nonprofit, cultural, and civic institutions. Their clients, including curators, artists, architects, and urban planners, have strong aesthetic visions of their own, which P+A helps to interpret in legible, engaging ways. Whether creating an image, an identity, an exhibition, a publication, or a website, the studio devises integrated solutions that communicate ideas, all while sourcing sustainable materials whenever possible.

P+A's work has received awards from the following institutions: American Association of Museums, Art Director's Club, American Institute of Graphic Arts, American Center for Design, Society for Environmental Graphic Design, and the Society of Publication Designers. Their work has been recognized by: *New York Times*, *Newsweek*, *New York Post*, *New York Daily News*, *San Francisco Chronicle*, *Wall Street Journal*, *ChangeObserver.com*, *Print* magazine, *Metropolis* magazine, *I.D.* magazine, *Details* magazine, *Creative Graphic Design* magazine, and in the books *Typographic Design: Form and Communication*, *What is Exhibition Design?*, *New Exhibition Design 2*, *Thinking with Type*.

Pure+Applied is no stranger to the development and design of transportation- and planning-related guidebooks. Their work for New York City Department of Transportation began in 2008 when the DOT approached them to design their new publication, *Sustainable Streets: A Strategic Plan for 2008 and Beyond*. The working relationship proved to be very successful; P+A has since designed additional publications such as *World Class Streets: Remaking New York City's Public Realm*, *Sustainable Streets Index*, and the *Street Design Manual* among others. P+A has also designed both the print and online versions of the NYC DOT *Street Works Manual*, a companion to the *Street Design Manual*. Beyond publications they have also worked on the "Broadway Boulevard Pilot Plan," informational installations, and plaza signage. P+A will be designing the second edition of the *Street Design Manual* in summer of 2012.

Urban Bikeway Design Guide

NACTO

Urban Bikeway Design Guide



NACTO National Association of City Transportation Officials

NACTO Urban Bikeway Design Guide						Master Reference Matrix					
Master Reference Matrix											
	Conventional Bike Lanes	Buffered Bike Lanes	Core Side Bike Lanes	Left-side Bike Lanes	One-Way Right-Turn Only/One-Way Left-Turn Only/One-Way Right-Turn Only/One-Way Left-Turn Only						
NACTO Member Resources	Bike Lanes				Cycle Tracks						
Austin Street Smart's Task Force Bicycle Facilities Toolkit											
Baltimore Bicycle Facilities Toolkit											
Chicago Bike Lane Design Guide											
District of Columbia Bicycle Master Plan											
District Department of Transportation Bicycle Facility Design Guide											
City of Detroit Non-Motorized Transportation Plan											
Los Angeles Bicycle Master Plan Technical Design Handbook											
Minneapolis Bicycle Facility Manual Ch 9 Innovation											
New York City Bicycle Master Plan											
Portland Bicycle Plan for 2030: Survey of Best Practices											
San Francisco Supplemental Design Guidelines											
Seattle Bicycle Master Plan											

Design Guidance

Bicycle Signal Heads

The following provides general guidance for selecting clearance intervals. This guidance should be tailored to local conditions using engineering judgment.

- At a minimum, the bicycle clearance interval should be sufficient to accommodate the 95th percentile riding speed (i.e., it should accommodate 85 percent of bicyclists at their normal riding speed). This is consistent with MUTCD guidance on pedestrian clearance intervals.
- Ideally, typical bicyclist speeds (V) should be measured in the field to determine a clearance interval appropriate for local conditions. However, at intersections with level approaches, 14 feet per second (3.5 miles per hour) may be used as a default speed in the absence of local data.
- Yellow intervals for automobiles (V) should be measured in the field to determine a clearance interval appropriate for local conditions. However, at intersections with level approaches, 14 feet per second (3.5 miles per hour) may be used as a default speed in the absence of local data.

The above guidance should be supplemented with engineering judgment as some intersections could be left with extremely long all-red signal phases.

Intersection width (W) should be calculated from the intersection entry (i.e., stop line or crosswalk in the absence of a stop line) to half-way across the last lane carrying through traffic.

Calculate the total clearance interval (CI) based on the following equation:

$$CI = 3 + \frac{W}{V}$$

The bicycle signal head shall be placed in a location clearly visible to approaching bicyclists.

A supplemental "Bicycle Signal" sign should be added below the bicycle signal head to increase comprehension.

While instructing bicyclists to use pedestrian signals in a low-cost option, the length of the pedestrian clearance interval (typically timed at 3.5 feet per second) is usually inappropriate for bicyclists.

push buttons for actuation where practical. Passive actuation is more convenient for bicyclists. If push buttons are used, they should be mounted such that bicyclists do not have to dismount to activate the signal.

There are currently no national standards for determining the appropriate clearance intervals for bicycle signals. However, the primary factors in choosing an appropriate clearance interval are bicyclist travel speed and intersection width. See guidance for selecting clearance intervals at left.

Bicyclists typically need longer minimum green times than motor vehicles due to slower acceleration speeds. This time is usually more critical for bicyclists on minor-road approaches, since minor-road crossing distance is typically greater than major-road crossing distance and minor-road crossings are often subject to short green intervals. Bicycle minimum green times is determined using the bicycle crossing time for standing bicyclists.¹⁰

Design and operation of bicycle signal heads should consider general MUTCD guidance on standards for traffic signals where applicable (e.g., positions of signal indications, visibility, aiming, and shading of signal faces). Many of the MUTCD considerations for traffic signals will not apply to bicycle signals. Existing experience with bicycle signal installations in some cities has resulted in post

mounted signals being utilized adjacent to the bikeway with a lower overall height. Such an installation functions more like a pedestrian signal than a vehicle signal. Some existing designs use shields and lowers to limit the driver's visibility of the bicycle signal to avoid any potential confusion. Engineering judgment should be used to ensure that the positioning of bicycle signal heads is optimal for each installation. It is recommended that bicycle signal heads be separated from motor vehicle signal heads by at least two feet to increase comprehension.

Optional Features

For improved visibility, near-side bicycle signals may be used to supplement far-side signals.

Visual variation in signal head housing for the bicycle signal when compared to adjacent traffic signals may increase contrast and awareness.

Near-side bicycle signals may incorporate a "bustle in green" display to provide information about when a green bicycle indication will be provided. This treatment has proved popular in Europe, but there are currently no known installations in the United States.

Design Guidance

Conventional Bike Lanes

The desirable bike lane width adjacent to a curb is 6 feet. The desirable side-of-road adjacent to a street edge or longitudinal joint is 4 feet, with a minimum width of 3 feet. In cities where illegal parking in bike lanes is an concern, 5-foot wide bike lanes may be preferred.¹¹

When placed adjacent to a parking lane, the desirable reach from the curb face to the edge of the bike lane (including the parking lane, bike lane, and optional buffer between them) is 14.5 feet; the absolute minimum reach is 12 feet. A bike lane next to a parking lane shall be at least 5 feet wide, unless there is a marked buffer between them. In cities where illegal parking in bike lanes is an concern, 5-foot wide bike lanes are preferred.¹²

The desirable bike lane width adjacent to a guardrail or other physical barrier is 2 feet wider than otherwise in order to provide a minimum shy distance from the barrier.¹³

Bicycle lane word and/or symbol and/or arrow markings (MUTCD Figure 9C-3) shall be placed outside of the motor vehicle travel path at intersections, driveways, and merging areas in order to minimize wear from the motor vehicle path.

A solid white lane line marking shall be used to separate motor vehicle travel lanes from the bike lane. Most jurisdictions use a 6 to 8 inch signal.

A through bike lane shall not be positioned to the right of a right turn only lane or to the left of a left turn only lane (MUTCD 9C-4). A bike lane may be positioned to the right of a right turn only lane if split-phase signal timing is used. For additional information, see Bicycle Signal Heads. For additional strategies for managing bikeways and right turn lanes, see Through Bike Lanes in this guide.

Recommended Features

Bike lanes should be made wider than minimum widths whenever possible to provide space for bicyclists to ride side-by-side and in comfort. Reduce bike lane width only after other street elements (e.g., travel lanes, medians, median offsets) have been reduced to their minimum dimensions. If sufficient space exists to exceed desirable widths, use buffered bike lanes. Very wide bike lanes may encourage illegal parking or motor vehicle use of the bike lane when placed adjacent to parking. A solid white line marking of 4 inch width should be used between the parking lane and the bike lane to minimize encroachment of parked cars into the bike lane.¹⁴

Gutter seams, drainage inlets, and utility covers should be flush with the ground and oriented to prevent conflicts with bicycle tires.

6 to 8 inch solid white lane line demarcates the bike lane.

Markings shall be placed outside of the motor vehicle travel path at driveways, intersections, and merging areas to minimize wear.

Desired minimum: 6 feet

Desired width (parking + bike lane together): 14.5 feet

Separation between bike lane striping and parking boundary reduces risk of dooring.

"Bike Lane" signs designate route.

Optional Features

"Bike Lane" signs (MUTCD 9B-17) may be located prior to the beginning of a marked bike lane to designate that portion of the street for preferential use by bicyclists. The 2000 MUTCD lists bike lane signs as optional; however, some states still require their use.

On bike lanes adjacent to a curb, "No Parking" signs (MUTCD 9B-3) may be used to discourage parking within the bike lane.

If the word, symbol, and/or arrow pavement markings (shown at left) are used, Bike Lane signs (see Section 9B-04) may also be used, but to avoid overuse of the signs not necessarily adjacent to every set of pavement markings.

Federal Highway Administration. (2000). Manual on Uniform Traffic Control Devices.

Color may be used to enhance visibility of a bike lane.

In cities where local vehicle codes require motor vehicles to merge into the bike lane in advance of a turn movement, lane striping should be dashed from 50 to 200 feet in advance of intersections to the intersection. Different states have varying requirements.

DORSET, MA

Relevant Experience

“The NACTO *Urban Bikeway Design Guide* has captured the national cycling expertise in a reference document that will enable cities to have safer and more attractive designs today.”

Sam Adams, Mayor, City of Portland, Oregon

The development of NACTO’s *Urban Street Design Guide* requires a skilled team that combines national design and safety research, extensive transportation engineering and planning expertise with a thorough understanding of current best practices. The team must also embrace new innovation and industry evolutions. The KAI Team’s breadth of work is illustrated in the following section. Each project embodies one or more critical elements of building the Guide, including:

- Development and/or understanding of national design and safety precedents for:
 - Complete Streets and Networks
 - Transit Hubs and Corridors
 - Neighborhood Streets
 - Special Street Types
 - Intersections
- International and national expertise in applied research and guidebook development
- Innovative web development, testing, and roll-out
- Experience planning, designing, and implementing urban street improvements for major urban cities throughout the U.S.

“A valuable reference tool for future planning and implementation of new bicycle projects in the City.”

James Shelby, Commissioner, City of Atlanta Department of Planning and Community Development

“NACTO’s *Urban Bikeway Design Guide* is perfect for any city looking to start a bike program at the highest level.”

Tom Tinlin, Commissioner of Transportation, City of Boston

NACTO “Cities For Cycling” Urban Bikeway Design Guide

NATIONAL

Alta Planning + Design, KAI, and P+A worked with a team of officials from National Association of City Transportation Officials (NACTO) member cities and a team of national and international bikeway design experts to develop the country’s first *Urban Bikeway Design Guide*. This interactive document provides state-of-the-practice solutions for 21 on-street bikeway treatments based on national and international practices, policies, and programs. It offers solutions developed by cities, for cities, filling a much needed niche: a dynamic web-based platform for information sharing and guidance. The website allows a close look at experience gained to date, and will be regularly updated as new information and experience informs practice.

A print version was recently released and endorsed by US Transportation Secretary Ray LaHood, who stated that the NACTO guide is “an extraordinary piece of work that is long overdue.” Dozens of communities are using it already. Alta and KAI have helped lead workshops on the Guide for APBP and ITE, and are involved in training professionals throughout the country.

Alta is also leading content creation for the 2012 edition of the *Urban Bikeway Design Guide* with new sections on bicycle boulevard design, colored pavement material guidance, updates and revisions to the exiting content, and contextual guidance.

National Association of City Transportation Officials

Linda Bailey
Federal Programs Advisor, NYCDOT
(212) 839-6415
2010 – 2011

Relevance to NACTO Urban Street Design Guide

- Complete street & intersection design
- Guidebook development
- Web & graphic design

Philadelphia Complete Streets Design Handbook

PHILADELPHIA, PA

KAI led an effort for the Philadelphia Mayor’s Office of Transportation and Utilities to develop a *Complete Streets Handbook* to update the City’s street design policies and standards to incorporate best practices for accommodating pedestrians, bicyclists, transit, and motor vehicles. The project included extensive research and stakeholder outreach to identify existing barriers to developing Complete Streets, local facility needs and preferences, as well as national and international best practices. The project also included creation of detailed design treatment guidance and a design treatment suitability matrix to support implementation of the City’s new urban street design typology.

The resulting Handbook, currently undergoing final graphic design, will be an easy-to-use manual that will provide the Streets Departments (and other public agencies), designers, and the development community with a practical guide for implementing Complete Streets solutions that effectively serve all modes

City of Philadelphia

Ariel Ben-Amos
Senior Planner, MOTU
(215) 686-9001
Ariel.ben-amos@phila.gov
2011 – 2012

Relevance to NACTO Urban Street Design Guide

- Complete street & intersection design
- Multimodal traffic operations
- Green Streets & Infrastructure
- Universal access
- Guidebook development

**NCHRP 3-70: Multimodal Level of Service
Analysis for Urban Streets**

NATIONAL

As part of a consultant research team, **KAI** contributed to National Cooperative Highway Research Program (NCHRP) Project 3-70, Multimodal Level of Service Analysis for Urban Streets. The project developed techniques for evaluating automobile, bicycle, pedestrian, and public transit level of service on urban streets, particularly with regard to interactions among the modes. Using the techniques developed by the project, analysts can evaluate the quality of service afforded to the users of each mode by an existing street configuration, as well as evaluate the future quality of service resulting from different alternatives for assigning the street right-of-way (for example, by replacing on-street parking with a bicycle lane, or by implementing transit preferential treatments). The project's work has been published as NCHRP Report 616 (research documentation) and NCHRP Web Document 128 (user's guide). KAI developed the transit components of the multimodal methodology. KAI is now involved in a follow-up project to apply the methodology in various regions around the country, to obtain local agency feedback on the techniques prior to their incorporation in the 2010 *Highway Capacity Manual*.

**National Cooperative Highway
Research Program**

Diane Schwager
TCRP Project Manager
(202) 334-1471
2003 – 2007

Relevance to NACTO Urban Street Design Guide

- Multimodal traffic operations
- Guidebook development

FHWA Traffic Signal Timing Manual

NATIONAL

KAI developed a *Signal Timing Manual* for the Federal Highway Administration as part of a national effort to improve the state of the practice regarding traffic signal timing. The manual is intended to consolidate all available information on the subject into a concise form that is readily accessible and user friendly. To this end, KAI synthesized information related to signal timing and the coordination of timing plans, and developed design and timing principles to address varying practices across the country.

The manual is intended to be easily navigable, relate closely to practical applications (including the provision of example problems that cover a range of solutions), and include sound explanations related to areas where there is not consensus among practitioners. The manual also identifies sound timing practices and showcase state-of-the-art equipment in a manner that is both comprehensive and forward-looking. The manual addresses aspects of traffic signals including planning, design, operations, and maintenance with proper consideration for all modes. Also discussed are operational features of the standard traffic signal controller such as detector layout and timing, coordination parameters, and advanced applications.

Federal Highway Administration

Eddie Curtis
Traffic Management Specialist
(404) 562-3920
2006 – 2009

Relevance to NACTO Urban Street Design Guide

- Complete street & intersection design
- Multimodal traffic operations
- Universal access
- Guidebook development

NCHRP 17-36: Production of the First Edition of the *Highway Safety Manual*

NATIONAL

KAI led development of the First Edition of the *Highway Safety Manual* (HSM), published in 2010. The HSM is the culmination of almost ten years of sponsored research and fills a significant gap in the project development process in the U.S. with respect to determining the safety effects of transportation projects. The HSM is a tool that provides engineers and other professionals with the ability to assess the quantitative safety effects of planning, design, operations, and policy decisions.

This manual is a user-friendly, applications-oriented document that assists practitioners with integrating safety into their everyday practice. It provides science-based guidance for conducting roadway safety analysis. The HSM has four parts: Part A introduces basic safety analysis concepts. Part B provides guidance for developing Roadway Safety Management Systems, including identifying promising sites, diagnosing safety problems, and selecting crash countermeasures. Part C provides methodologies for predicting the number of crashes for roadway facilities. Finally, Part D provides quantitative guidance on the anticipated changes in the frequency and severity of crashes based on the application of geometric, operational, and policy-level actions to the roadway network.

KAI led the development of HiSafe software tools that enable designers to test the safety tradeoffs of various design decisions. KAI has also conducted workshops and seminars throughout the United States on conducting quantitative highway safety analysis.

National Cooperative Research Program

Chuck Niessner
Senior Program Officer
(202) 334-1431
2008 – 2010

Relevance to NACTO Urban Street Design Guide

- Complete street & intersection design
- Multimodal traffic operations
- Guidebook development

DDOT Innovative Bicycle Facility Evaluation

WASHINGTON, DC

The District of Columbia DDOT recently implemented several innovative bicycle facilities intended to improve cyclist comfort and safety by reducing cyclist-motorist conflicts. **KAI** is leading a comprehensive analysis of these facilities to evaluate their impact on safety and operations for all modes. The evaluation includes before and after video data analysis of conflicts, multimodal level of service analysis, and user surveys on three facilities within the District. These facilities include cycle tracks, bike boxes, bicycle signal heads, and contra-flow bike lanes. The evaluation provides a unique opportunity to assess these innovative facilities from the perspective of all roadway users to understand both their benefits and drawbacks. The results of the evaluation will be used to refine the existing designs, as well as to provide guidance on best practices to achieve desired results for future bicycle facility designs within the District.

District of Columbia DOT

Mike Goodno
Bicycle Program Specialist
(202) 671-0681
2011 – Ongoing

Relevance to NACTO Urban Street Design Guide
– Multimodal traffic operations

PORTLAND BIKEWAYS

PORTLAND, OR

Alta Planning + Design and **KAI** partnered to enhance six bicycle corridors in Portland Oregon. Each corridor shares the challenge of being increasingly popular cycling routes in need of amenities to support continued growth. The project identified and applied bikeway designs that were customized to each corridor's unique conditions with the goal of accommodating further bicycle growth by helping riders feel safer and more comfortable. This was done while also supporting the needs of all right-of-way users. The following describes how broader benefits to the community were incorporated in this cutting-edge bicycle project.

- Right-of-way space was reallocated in the process of improving bicycling conditions. Designs incorporated green streets/stormwater facilities, bike parking corrals, and maximized on-street parking.
- A traffic lane was removed to make room for bike lanes but the potential for increased congestion was addressed to the benefit of cyclists, drivers, and pedestrians through creative signal timing and coordination strategies.
- Pavement striping changes were customized to retain important freight truck maneuverability.
- Existing transit-bicycle maneuvering conflicts at bus stops were eliminated. In one corridor buses and bicycles now share the same exclusive lane. In another case bike lanes will be repositioned so buses no longer cross bike lanes when approaching and serving bus stops.
- Pedestrian crossing enhancements were added to help support neighborhood business districts and to connect missing links in potentially walkable neighborhoods.

KAI contributed its breadth of bicycle facility design experience, multimodal level-of-service analysis, and its comprehensive transportation operations and signal design expertise to this project.

City of Portland

Ellen Vanderslice

Project Manager

(503) 823-4638

2010 – 2012

Relevance to NACTO Urban Street Design Guide

- Complete street & intersection design
- Multimodal traffic operations
- Universal access
- Green street & infrastructure design

Chicago Streets for Cycling

Chicago, IL

Sam Schwartz Engineering (SSE) is the lead consultant for Chicago's Street for Cycling 2020 Plan. The purpose of the plan is to identify a new network of facilities that will allow the city's youngest and oldest residents to feel safe riding their bike on street. This includes identifying over 100 miles of protected bike lanes as well as additional streets for buffered bike lanes, separated bike lanes, and neighborhood greenways.

A comprehensive citywide outreach effort was conducted to help inform the recommendations in the plan. Four public meetings were held in the beginning of the project throughout the city to allow local residents and stakeholders to identify streets that are good for bicycling and barriers that need to be overcome. Nine community advisory groups were established that met independently of the project team on a monthly basis to obtain additional input for their particular part of the city.

The draft network will be released in early June 2012 after the second set of outreach meetings.

Chicago Department of Transportation

Ben Gomberg
Bicycle Program Coordinator
(312) 744-8093
2011 – Ongoing

Relevance to NACTO Urban Street Design Guide

- Complete street & intersection design
- Multimodal traffic operations

Chicago Pedestrian Plan

CHICAGO, IL

Sam Schwartz Engineering (SSE) is working with the Chicago Department of Transportation (CDOT) as the lead consultant on the City's Pedestrian Plan. The Pedestrian Plan will be a policy document that identifies the necessary actions to improve the safety, connectivity, and livability of Chicago's streets to make it the most pedestrian friendly city in the country. It identifies over 200 unique policy actions that address a wide variety of issues that affect the city's pedestrians on a daily basis.

A tool was developed to assist with the implementation plan that identifies high priority areas. The tool was based on citywide datasets that related to the goals of the plan, such as pedestrian crashes, transit ridership, income levels, density, and public health metrics. SSE conducted a citywide outreach process to ensure that all voices are heard as part of the process, which included seven public meetings, a webinar, and a website (<http://www.chicagopedestrianplan.org>). The draft plan is expected to be released in June 2012.

Chicago Department of Transportation

Kiersten Grove
Pedestrian Safety Coordinator
(312) 744-5718
2010 – Ongoing

Relevance to NACTO Urban Street Design Guide

- Complete street & intersection design
- Multimodal traffic operations
- Universal access

**Water Street Vision Plan: A New Approach:
Transforming Lower Manhattan's Modern
Commercial Boulevard**

NEW YORK, NY

Sam Schwartz Engineering (SSE) was retained by the Alliance for Downtown New York business improvement district to improve the desirability of one of Lower Manhattan's most important commercial corridors. The street was previously designed to accommodate a large volume of rapidly moving traffic. Working closely with business and real estate owners and other stakeholders, SSE developed a design concept that calmed traffic, created lush new pedestrian spaces, and meets the needs of bus passengers and bicyclists in addition to motorists.

The Alliance for Downtown New York

Nicole LaRusso

Senior Vice President for Planning and Economic Development

(212) 835-2775

2009 – 2010

Relevance to NACTO Urban Street Design Guide

- Complete street & intersection design
- Multimodal traffic operations

DDOT Action Agenda

WASHINGTON, DC

Sam Schwartz Engineering (SSE) is working with the Chicago Department of Transportation (CDOT) as the lead consultant on the City's Pedestrian Plan. The Pedestrian Plan will be a policy document that identifies the necessary actions to improve the safety, connectivity, and livability of Chicago's streets to make it the most pedestrian friendly city in the country. It identifies over 200 unique policy actions that address a wide variety of issues that affect the city's pedestrians on a daily basis.

A tool was developed to assist with the implementation plan that identifies high priority areas. The tool was based on citywide datasets that related to the goals of the plan, such as pedestrian crashes, transit ridership, income levels, density, and public health metrics. SSE conducted a citywide outreach process to ensure that all voices are heard as part of the process, which included seven public meetings, a webinar, and a website (<http://www.chicagopedestrianplan.org>). The draft plan is expected to be released in June 2012.

Chicago Department of Transportation

Kiersten Grove

Pedestrian Safety Coordinator

(312) 744-5718

2010 – Ongoing

Relevance to NACTO Urban Street Design Guide

- Complete street & intersection design
- Multimodal traffic operations
- Universal access

***Complete Intersections: A Guide to
Reconstructing Intersections and Interchanges
for Bicyclists and Pedestrians***

STATEWIDE, CALIFORNIA

Alta Planning + Design (Alta) teamed with Cambridge Systematics to develop a guidebook and training for the California Department of Transportation (Caltrans), *Complete Intersections: A Guide to Reconstructing Intersections and Interchanges for Bicyclists and Pedestrians*. Throughout the project, Alta worked closely with a team of stakeholders from different departments in Caltrans. The Guidebook includes descriptions and illustrations of common issues and design solutions for a variety of intersection and interchange types. At the conclusion of the project, Alta developed and led two one-day pilot trainings for Caltrans staff. Recommendations included in the Guidebook are being incorporated into Caltrans revised *Highway Design Manual*.

Caltrans and Cambridge Systematics

Ryan Greene-Roesel
Research Associate – Cambridge Systematics
(510) 873-8700
2010

Relevance to NACTO Urban Street Design Guide

- Complete street & intersection design
- Guidebook development

North Carolina Complete Streets Design Manual

STATEWIDE, NORTH CAROLINA

Alta Planning + Design (Alta) served as a consultant to NCDOT for the development of the *Complete Streets Design Guidelines*. Alta's role was to provide expert analysis and perspective on bicycle, pedestrian, and multi-use path facility design and implementation. North Carolina's Complete Streets will be interdependent, multi-modal transportation networks that safely accommodate access and travel for all users. NCDOT's recently adopted Complete Streets policy requires that state planners and designers will consider and incorporate multimodal alternatives in the design and improvement of all appropriate transportation projects within a growth area of a town or city, unless exceptional circumstances exist. Once the NCDOT instituted this policy, Alta assisted with implementation.

NCDOT and PB Americas

Jim Westmoreland
Deputy Secretary—NCDOT
(919) 733-2520
2010 – 2011

Relevance to NACTO Urban Street Design Guide

- Complete street & intersection design
- Guidebook development

Ontario Bikeway Planning & Design Guidelines Update

ONTARIO, CANADA

Alta Planning + Design (Alta) teamed with Toronto's MMM Group and worked with the Ontario Ministry of Transportation to provide a comprehensive update to the provincial *Bikeway Planning and Design Guidelines*. The effort involves the development of design guidelines and graphics updates that incorporate the latest policy and design concepts from similar manuals in Canada and the United States. Alta's design work included the development of a comprehensive matrix of bike-facility options for potential incorporation along Provincial roadways, including shared lane markings, wide outside lanes, standard bike lanes, buffered bike lanes, and cycle tracks. The final report includes a recommendation for the most appropriate facility and an evaluation that helped to determine the recommendation.

Ontario Ministry of Transportation and MMM Group

David McLaughlin

Senior Project Manager– MMM Group

(905) 882-4211 x.6520

2011 – 2012

Relevance to NACTO Urban Street Design Guide

- Complete street & intersection design
- Multimodal traffic operations
- Guidebook development

Clean Water Services LID Approaches Handbook

WASHINGTON COUNTY, OR

Greenworks and Lori Faha developed a *Low Impact Development Approaches (LIDA) Handbook* for Oregon's Clean Water Services, which is used also by Washington County and the cities in the urban area. The project had two phases: the 1st phase included internal and external stakeholder interviews and workshops and resulted in an agreed upon table of contents and format for the Handbook. Stakeholder groups including local governments, the development community and design community were surveyed regarding existing use of, interest in, and issues/obstacles with implementing LIDA practices using the "Survey Monkey" tool (over 100 responses were tallied). This was followed by in-depth interview workshops with key stakeholders to gather more detailed information to help determine the scope and contents for the Handbook. The 2nd phase was the actual Handbook development, a collaborative effort between the GreenWorks team and CWS staff. The handbook includes site assessment and planning, 3-D sketches showing integration of LIDA practices on various types of sites, and individual Fact Sheets for each LIDA practice that include photos, 3-D visualizations, cross-sections, and information including appropriate use, design/sizing, planting and maintenance needs.

Clean Water Services

Carrie Pak, P.E.

Engineering Division Manager

(503) 681-3600

2008 – 2010

Relevance to NACTO Urban Street Design Guide

- Guidebook development
- Green street & infrastructure design

Clay Street Industrial Green Street

PORTLAND, OR

Greenworks worked with Portland Bureau of Environmental Services on a streetscape design for a 12 block section of SE Clay Street in the Central Eastside Industrial District (CEID). The new green street provides a pedestrian friendly corridor from Ladd's Addition to the Eastbank Esplanade. GreenWorks, BES and several public stakeholder groups worked together in a series of public outreach meetings to obtain feedback and approval of the green street alternatives. The alternatives focus on several environmental benefits including stormwater management, pedestrian and bicycle activity along routes to the river, and sustainable strategies that maintain freight movement and business activities throughout the Central Eastside Industrial District.

Portland Bureau of Environmental Services

Linda Dobson
Division Manager
(503) 823-5271
2007 – 2009

Relevance to NACTO Urban Street Design Guide

- Multimodal traffic operations
- Green street & infrastructure design

Denver Avenue Green Main Street

PORTLAND, OR

The Denver Avenue Streetscape project encompasses one phase of the larger Downtown Kenton Redevelopment Project led by the Portland Development Commission and comprises the four-block historic Kenton business district in North Portland. The initial phase of the streetscape design developed an overall concept for the street section including the widening of sidewalks, addition of bike lanes and the restructuring of existing parking, drive lanes and medians.

Greenworks developed designs while working closely with a Citizen Advisory Committee, Technical Advisory Committee, and with input from the public at open house meetings. In the schematic phase, an overall street layout for the corridor was developed that defined paving patterns, materials, street trees, site furniture, ornamental light fixtures and the design of gateways at either end of the corridor. An important component was the integration of green street stormwater solutions within the right-of-way.

Portland Development Commission

Carol Herzberg
Project Coordinator
(503) 823-3276
2006 – 2008

Relevance to NACTO Urban Street Design Guide

- Complete street & intersection design
- Green street & infrastructure design

Warner Milne Gateway Green Street

OREGON CITY, OR

As part of the realignment of Warner-Milne Road at the Molalla Avenue intersection, the City of Oregon City selected a team including **Greenworks** to design a rain garden in a vacated portion of the right-of-way that treats stormwater runoff from adjacent, heavily-traveled roadways. A series of large serpentine Corten steel fins meander through the site, articulating the stormwater channel and creating a striking gateway for the area. The contrast of steel with lush rain garden plantings is the first of its kind in Oregon. This rain garden and green street facility incorporates prominent sculptural elements that highlight the City's commitment to sustainability. The project also included streetscape improvements such as new street trees, decorative tree and trench grating, and permeable concrete sidewalks.

City of Oregon City

Nancy Kraushaar

City Engineer/Public Works Director

(503) 657-0891

2007-2009

Relevance to NACTO Urban Street Design Guide

– Green street & infrastructure design

NCHRP 3-62 and 3-62a: Guidelines for Accessible Pedestrian Signals

NATIONAL

Accessible Design for the Blind (ADB) is a subcontractor to UNC Highway Safety Research Center on this project which conducted field research to determine optimal design and features of accessible pedestrian signals. Results of this research are incorporated into MUTCD 2009, Chapter 4E, and by reference, into the proposed Rights-of-Way Accessibility Guidelines. A guide for transportation professionals, *Accessible Pedestrian Signals: A Guide to Best Practices*, available at <http://www.apsguide.org>, was also produced. This guide provides detailed information and examples of installations of accessible pedestrian signals, an important universal design feature of urban intersections. Additional funding has been provided to provide ongoing training workshops to state DOTs on the new guidelines.

Transportation Research Board, Cooperative Research Programs (Div. D)

Stephan A. Parker

TCRP Senior Program Officer

(202) 334-2554

2001-Ongoing

Relevance to NACTO Urban Street Design Guide

- Complete street & intersection design
- Universal access
- Guidebook development

Common Problems Arising in the Installation of Accessible Pedestrian Signals

NATIONAL

The US Access Board contracted with **Accessible Design for the Blind (ADB)** to develop a guidance bulletin on problems often noted in the installation of accessible pedestrian signals and possible solutions. The bulletin is available digitally at <http://www.access-board.gov/research/pedestrian-signals/bulletin.htm>. Solutions to design issues related to provision of accessible pedestrian signals will be incorporated into the NACTO *Urban Street Design Guide*.

US Access Board

Scott Windley
Accessibility Specialist
(202) 272-0080
2009

Relevance to NACTO Urban Street Design Guide

- Complete street & intersection design
- Universal access

Special Report: Accessible Public Rights-of-Way Planning and Design for Alterations

NATIONAL

Accessible Design for the Blind (ADB) principal Janet Barlow was chair of the subcommittee that developed the Special Report: Accessible Public Rights-of-Way Planning and Design for Alterations, a guidance manual on the application of the draft public rights-of-way accessibility guidelines in alterations projects. This information was developed by a subcommittee of the Access Board's Public Rights-of-Way Access Advisory Committee to provide practical guidance to transportation engineers on the application of the ADA in the existing rights-of-way in alterations situations. Key members of the subcommittee were Dan Dawson, OTAK, Jerry Markesino, Portland, OR, and Elizabeth Hilton, Texas DOT. The report is available digitally at <http://www.accessboard.gov/prowac/alterations/guide.htm>.

US Access Board

Scott Windley
Accessibility Specialist
(202) 272-0080
2007

Relevance to NACTO Urban Street Design Guide

- Complete street & intersection design
- Guidebook development
- Universal access

Designing Pedestrian Facilities for Accessibility

NATIONAL

Accessible Design for the Blind (ADB) was a member of the team that developed and revised the course, *Designing Pedestrian Facilities for Accessibility*, for the Association of Pedestrian and Bicycle Professionals

Association of Pedestrian and Bicycle Professionals

Kit Keller
Executive Director
(262) 228-7025
2008

Relevance to NACTO Urban Street Design Guide

- Complete street & intersection design
- Universal access

Open Streets Project

NATIONAL

Open streets initiatives temporarily close streets to automobiles so that people may use them for just about any activity but driving—walking, jogging, bicycling, dancing and just about any other physical activity. Today, there are more than 70 open streets initiatives in the United States and Canada.

The Open Streets Project began in early 2010 when **Street Plans Collaborative** began examining the breadth and diversity of open streets initiatives in the United States and Canada. In the fall of 2010, Street Plans teamed with the Alliance for Biking & Walking with the goal of reaching local advocates and open streets organizers across North America. Using a grant from the Fund for the Environment and Urban Life, Street Plans completed the research in late 2011 and designed/published the print guide in February 2012. Street Plans and the Alliance are now working together to provide technical advisory services and open streets trainings.

The Open Streets Project also includes an interactive website (<http://www.openstreetsproject.org>), built by Open Plans. The website allows advocates and new open streets organizers to explore open streets efforts in other peer cities and to add their own initiatives. The website also allows seasoned open streets organizers to continually update and share best practices, maps, photos, videos, and publicity materials via the individual initiative page and blog features.

Fund for the Environment and Urban Life

Stuart Baker
Executive Director
(510) 649-1061
2010 – Ongoing (Phase 3 currently underway)

Relevance to NACTO Urban Street Design Guide

- Guidebook development
- Web & graphic design

Plan El Paso

EL PASO, TX

In collaboration with Dover Kohl and Partners, **Street Plans Collaborative** contributed to a multi-phase comprehensive planning effort for the City of El Paso, Texas. In the first phase, Street Plans joined the team to help calibrate the SmartCode for select Transit-Oriented Development Areas surrounding the existing and proposed Bus Rapid Transit stations. Street Plans also helped the project team formulate a vision for each TOD site, contributing to infill master plans produced substantially at the first visioning charrette. These plans included implementing a multi-modal vision intended to guide future municipal investment in not just transit, but an increase in bicycle and pedestrian mode share.

Street Plans contributed to the second and third project phase by developing a citywide bicycle route and policy plan, as well as a SmartCode Bicycle Module calibration so that form-based zoning was inclusive of active transportation best practices.

Street Plans also served the project as the firm in charge of designing and managing the project website. Designed to be the first point of contact for most stakeholders, Street Plans integrated a collaborative online mapping tool that allowed the project team to efficiently collect and analyze public comments. With more than 47,000 hits, this interactive web tool quickly became the primary means of communication between the project team and the public-at-large.

In December 2011 Plan El Paso was one of five planning projects awarded a National Award for Smart Growth Achievement by the Environmental Protection Agency.

City of El Paso

Carlos Gallinar
Comprehensive Plan Manager
(915) 541-4662
2010 – 2012

Relevance to NACTO Urban Street Design Guide

- Complete street & intersection design
- Web & graphic design

Brighton Boulevard FHWA Context-Sensitive Technical Assistance Plan

DENVER, CO

On behalf of the Federal Highway Administration, **Street Plans Collaborative** joined Project for Public Spaces in providing technical assistance to the City of Denver in the redesign of Brighton Boulevard.

The primary corridor between downtown Denver and Interstate 70, Brighton Boulevard is characterized by fading industrial land uses and an auto-dominated transportation infrastructure. To combat these conditions, the City of Denver has re-zoned the corridor and surrounding neighborhood for more intensive, mixed-used, transit-oriented development. Supporting this vision is the planned arrival of a new streetcar and a regional commuter light rail line, adding multiple stations on and within close proximity to the corridor. Commensurate and needed improvements to the public realm are desired by the City of Denver and the diverse stakeholders located along and nearby the Brighton Boulevard corridor.

Street Plans and the Project for Public Spaces provided extensive public involvement workshop, corridor planning, and urban design services for the project, with the aim of moving the city's vision forward. The project team also looked closely at how small, incremental or even temporary material improvements could advance the quality of the public realm.

City of Denver

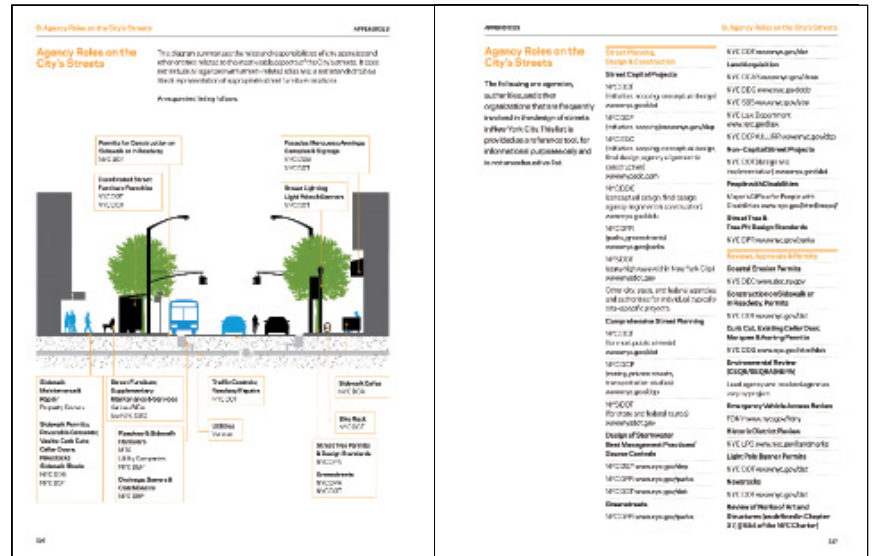
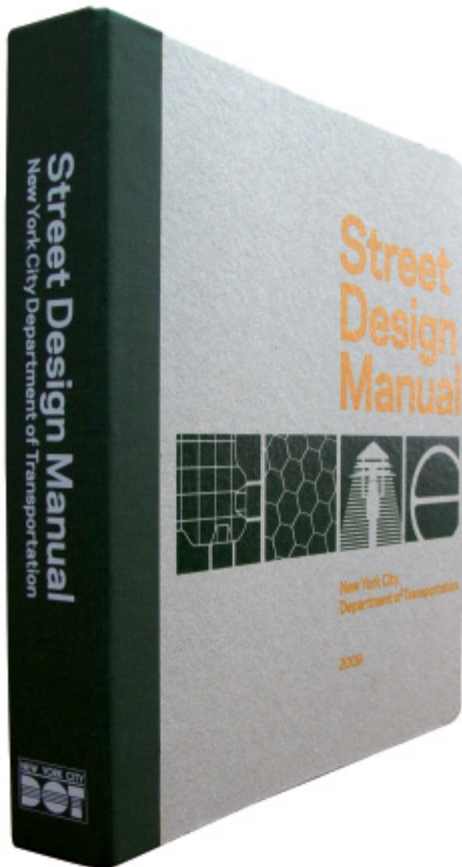
Crissy Fanganello
Director of Policy and Planning
(720) 865-3026
2011

Relevance to NACTO Urban Street Design Guide

- Complete street & intersection design

Street Design Manual

New York City Department of Transportation



1.3 The Planning Process

USING THE MANUAL

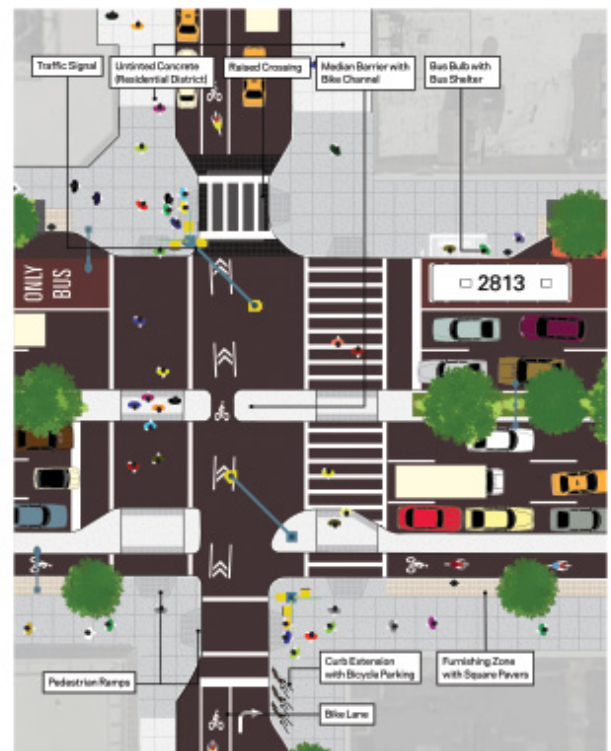
Sample Streets

Figure 1 Treatments Appropriate to Major Through-Streets



USING THE MANUAL

1.3 The Planning Process



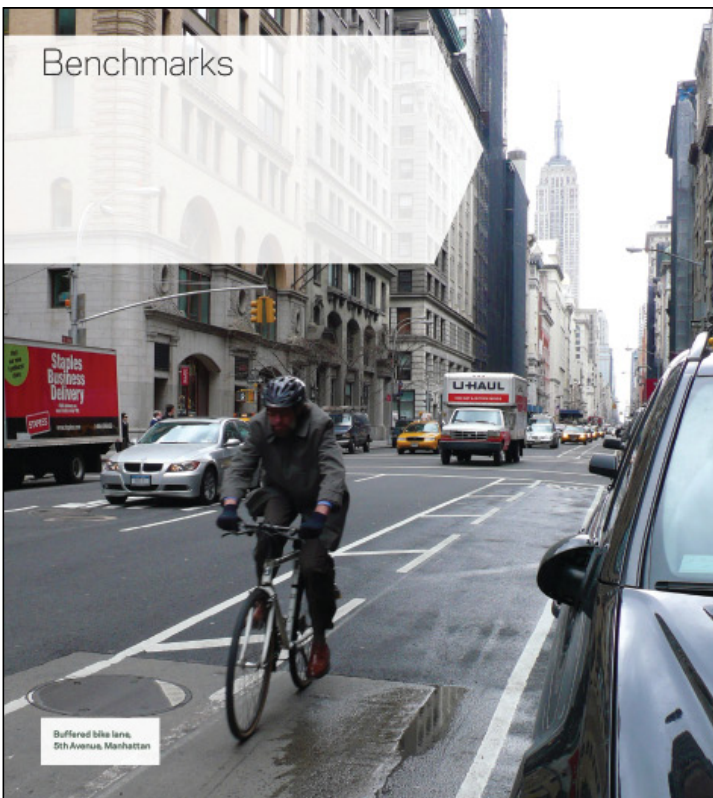


Sustainable Streets

Safety
Mobility
World Class Streets
Infrastructure
Greening
Global Leadership
Customer Service

**Strategic Plan
for the New York City
Department of
Transportation
2008 and Beyond**

World Class Streets: Remaking New York City's Public Realm New York City Department of Transportation



Benchmarks

Buffered bike lane,
5th Avenue, Manhattan

ACTIONS	2007-2008	2010 AND BEYOND	Lead Stakeholder	Supporting Agencies or Partners	Action-Implementing DOT	SAFETY
STREET DESIGNS TO MAXIMIZE PUBLIC SAFETY						
Reduce traffic fatalities		— Cut traffic fatalities by 50% by 2030	Traffic	NYSDOT, NYPD		
Implement More Safe Routes to Schools	— Complete capital construction at 12 priority schools — Complete slow speed school zones pilot project — Short term measures at 135 schools complete — Evaluate and initiate studies at 40 high schools	— Complete 150 priority school reports completed — Complete capital construction at all 135 priority schools — Initiate short term measures at 150 additional schools (2010) and 40 high schools	Traffic	External: RCTA, NYSDOT, NYSDOT	Funding	
Launch Safe Streets for Seniors	— Identify 25 Senior Pedestrian Focus Areas (SPFAs) based on top senior pedestrian crashes in the five boroughs — Implement early action measures in five pilot locations (i.e. signal timing for seniors, upgraded signage, marking and pedestrian refuge islands) — Study, develop improvements, and implement early action items at 20 SPFAs	— Complete design of 20 SPFAs	Traffic	External: RCTA, NYSDOT, NYSDOT		
Make traffic safety measures a focus of neighborhood transportation studies	— Develop scope of work templates that focus on traffic safety deliverables		Planning and Sustainability, Traffic	RCTA		
Streamline traffic calming projects	— Create recommendations to speed project planning and delivery, create project management toolkit — Implement recommendations, including completion of Downtown Brooklyn Phase A	— Downtown Brooklyn Phase B	PWD	RCTA, NYSDOT, NYSDOT		
Expand and improve safety-oriented signal strategies	— Expand test of pedestrian countdown signals and evaluate results — Re-engineer leading pedestrian intervals (LPI) giving 5 additional seconds for pedestrians to cross intersections — Implement one-way corridor signal timing patterns to increase pedestrian crossing time and discourage speeding	— Double the number of LPIs using 2007 benchmark	Traffic			
Complete bus stops under elevated trains improvements	— Finalize installation of raised concrete medians at 3 bus stops under elevated trains	— Complete installation of raised concrete medians at remaining 37 bus stops under elevated trains identified for safety improvements (2012)	Planning and Sustainability	RTA		
SAFETY ENFORCEMENT						
Expand automated enforcement	— Pursue legislation for additional red light cameras and introduction of speed cameras	— Additional cameras deployed as legislation permits	Operations and Traffic	External: RCTA, NYSDOT, NYSDOT	Legislation approval	
Fund additional NYPD traffic enforcement	— Assess enforcement and equipment needs	— Deploy additional enforcement and equipment	Funding	NYSDOT, NYSDOT	Funding	

Street Design Manual

NEW YORK, NY

Pure+Applied worked closely with the NYC DOT to produce the department's first comprehensive Street Design Manual. Having implemented a new typographic and graphic approach for NYC DOT's Strategic Plan, our goal was to apply the approach to create a clear, reader-friendly, engaging and recognizable guide. Our role included reviewing the DOT image database, helping to organize the materials, establishing visual and graphic hierarchies, redrawing numerous infographics to achieve consistent graphic language and style, as well as sourcing Forest Stewardship Council-certified paper and printing.

New York City Department of Transportation

Margaret Newman
Chief of Staff
(212) 541-4662
2009 – 2010

Relevance to NACTO Urban Street Design Guide
– Graphic design

World Class Streets: Remaking**New York City's Public Realm**

NEW YORK, NY

Pure+Applied designed the initial strategic plan under the new commissioner Janette Sadik-Khan. With the completion of this publication and subsequent publications, P+A began establishing a new graphic identity for the New York City Department of Transportation .

New York City Department of Transportation

Margaret Newman
Chief of Staff
(212) 541-4662
2009 – 2010

Relevance to NACTO Urban Street Design Guide
– Graphic design

Project Team Members

Kittelson & Associates, Inc.



Mary Raulerson | Principal-In-Charge/Project Manager

Mary has dedicated the past 21 years to assisting public agencies in the development of livable transportation solutions for small- and large-scale transportation projects. These projects focus on developing Complete Street solutions that support community goals and future visions, are affordable and provide sound economic development opportunities. Mary has worked extensively throughout the country on a variety of transportation modes and projects, including rail systems, busways, highways, national parks, scenic highways, and bridges, and has a proven track record of working with multidisciplinary teams to develop transportation and land use solutions that are community-driven, sustainable, affordable and meet agency needs. She has worked with state DOTs to develop integrated land use and transportation programs; most recently she led the Smart Transportation Initiative for the Pennsylvania Department of Transportation.



Jessica Horning | Assistant Project Manager

Jessica Horning is a Transportation Planner with experience leading and supporting pedestrian and bicycle transportation planning, research, facility evaluation, and design projects nationwide. Jessica has supported complete street planning, design, and implementation projects in NACTO cities, including the Philadelphia Complete Streets Design Handbook, Portland Bikeways Implementation project, and DC transit-oriented development studies. Jessica has served as Deputy Project Manager for multiple long-range multimodal and Transportation Demand Management (TDM) planning efforts, which have aided jurisdictions in developing and marketing alternatives to driving alone (e.g., biking, transit, telework). Her project experience also includes development impact analysis, multimodal safety analysis, transit systems planning, and geographic information systems (GIS). Jessica is an effective communicator and an active member of the non-motorized transportation community.

**Mike Coleman | PE**

Mike has over 25 years of planning and traffic engineering experience, primarily as a steward of Portland Oregon's rights-of-way and transportation system. Mike's extensive experience in the daily operations of a community's transportation system distinguishes him from most of his consultant colleagues and has proven to be a significant asset to other communities. He has managed and provided traffic engineering expertise on many commercial district and dense residential enhancement projects. Mike has an extensive history of successfully working with engineering, architectural, planning, and maintenance professionals; citizens and their elected representatives; and a wide range of public agencies to develop, design, construct, operate, and maintain a community's transportation system. Mike draws on his substantial experience as the Supervising Traffic Engineer for the City of Portland's Traffic Design Section where in addition to leading his traffic engineering staff, he served as the City's liaison to the Oregon Department of Transportation's Highway Division and Rail Division, the Portland Region's transit agency, all heavy gauge railroads, and several district business associations.

**Scott Beaird | PE, PTOE**

Scott specializes in traffic operations, signal systems, and intersection design. His experience includes transit signal priority implementation; bicycle signal design, signal design and modification; signal timing analysis, development, and implementation; corridor safety and operations analysis; and pedestrian crossing treatments. He has hands-on experience with a number of controller types and software. Scott is engaged in the signal systems practice at a national level through research and participation in committees. He is a member of the NCUTCD Signals Technical Committee, which provides a current understanding of advances in the signal systems practice and changes to the MUTCD.

**Charles Radosta | PE**

Charles has nearly two decades of experience through his involvement in a wide range of transportation engineering projects throughout the Pacific Northwest. He has overseen and/or managed hundreds of publicly-funded traffic-engineering projects and dozens of on-call contracts. He has prepared final plans, special provisions, and cost estimates (PS&E) on traffic engineering projects featuring permanent and temporary traffic signals, roadway signing, pavement markings, pedestrian-scale and highway lighting, and traffic control plans. His breadth of project types includes developing improvements at freeway interchanges, along rural highways and suburban arterials, and within urban business districts. Charles served on the Oregon Traffic Control Devices Committee (OTCDC) from 1999 to 2011, addressing key statewide transportation issues such as Oregon's adoption of periodic updates to the MUTCD.

Sam Schwartz Engineering**Mark de la Vergne**

Mark has 10 years of traffic engineering and pedestrian safety experience. He has extensive experience related to pedestrian safety and mitigation strategies in the urban context. He also has worked on a number of innovative outreach projects, including the Wicker Park Bucktown Master Plan which was recognized by the American Planning Association in 2010 with its National Excellence Award for Outreach. Mark currently serves on the Board of Directors of the Association of Pedestrian and Bicycle Professionals, where he chairs the research committee, and serves on the steering committee of America Walks.

**Douglas Adams**

Douglas is a director and associate specializing in active transportation planning and design, environmental planning, and community outreach. He manages transportation planning studies and works to improve the multi-modal transportation efficiency of urban spaces. Douglas' areas of expertise include complete and shared streets, bicycle facility planning, pedestrian planning and safety, and transportation demand management. He is currently designing 3.5-miles of protected bicycle lanes under the Chicago Streets for Cycling program; the first on-street bicycle facilities in Allentown, Pennsylvania; and the conversion of 2.2-mile Spring Garden Street in Center City Philadelphia from a standard street to an urban greenway. Douglas' projects have received numerous awards from the American Council of Engineering Companies.

**Eric Widstrand**

Eric has 19 years of experience working on various traffic and transportation projects for both public and private agencies. Eric comes to SSE from the City of Seattle where he worked in the Seattle Department of Transportation for five and a half years. He was the City Traffic Engineer for two and half years where he managed a group of 35 engineering and technical staff representing Arterial Operations, Neighborhood Traffic Control, Pedestrian/Bicycle Program and Neighborhood Project Design. Immediately prior, Eric worked 8 years with David Evans & Associates, a large west coast A/E firm, where he focused his efforts on supporting public agencies with the development, strategic planning, and design of large-scale transportation projects. In addition, Mr. Widstrand has experience working as a consultant in Chicago. Mr. Widstrand is a licensed Civil Engineer in California, Illinois and Washington.

Alta Planning + Design**Joe Gilpin**

Joe brings a diverse background, including international perspectives, in bicycle and pedestrian advocacy, education, design, and planning to Alta. Joe provides technical and analytical research and writing, fieldwork and site analysis, mapping, data analysis, facility design, and creative services to the firm. Joe is one of Alta's experts in bicycle facility design and has worked both as a project designer on numerous projects, and as a planner analyzing network connectivity and corridor planning.

**Nick Falbo**

Nick specializes in research, design and application of complete streets concepts for urban and rural roadways, and he appreciates the nuances of such design elements. Nick is a strong proponent of using visual communication in planning, and this comes through on each of his projects in the presentation of his data analysis, GIS, and high quality graphic work. He believes the community building potential of active transportation, and enjoys rolling through his neighborhood every day at a speed that allows him to stop, look around, and make friends.

**Craig Williams, AICP**

Craig brings more than 30 years of diverse experience in transportation planning, engineering and program management, both with the Illinois Department of Transportation (IDOT) and in the private sector. Over the past two decades, a primary focus has been facilitating livable, pedestrian-friendly communities, such that residents and visitors are offered the opportunity to 'leave your keys at home,' and walk, stroll, or roll to life's everyday destinations. Craig's areas of expertise include project studies and management, non-motorized (bicycle and pedestrian) planning and design, Complete Streets and Context Sensitive Design, legislation, financing, and grant programs. His transportation background includes experience with highways, public transit and railroads, historic transportation corridor studies, building rehabilitation projects, environmental analysis, public involvement, and intergovernmental coordination.

**Jeff Gulden, PE, TE**

Jeff brings a wide variety of transportation engineering experience from work in the Sacramento and Southern California regions. His areas of expertise are in traffic calming and bicycle and pedestrian planning. He has completed many successful bicycle and pedestrian planning projects and has served as a Pedestrian Safety Evaluator for the California Office of Traffic Safety. He has also completed numerous traffic-specific projects, including traffic impact studies, transportation operations using simulation software, parking studies, and master plans. He has studied both nationally and internationally and is currently involved with transportation planning research at the City and Metropolitan Planning Department at the University of Utah. Jeff recently co-authored the traffic calming chapter of the latest ITE Traffic Engineering Handbook and was a key contributor to the American Planning Association's US Traffic Calming Manual.

GreenWorks**David Elkin**

Dave's expertise focuses on the intersection between natural systems and urban design. His understanding of natural systems and technical knowledge of green streets has led to his success in planning and designing green street facilities. His experience includes working for the City of Portland's Sustainable Stormwater Group for a number of years where he inventoried and designed hundreds of green solutions within the public right-of-way. His depth of knowledge related to embedding green infrastructure within urban watersheds will provide the design team with a firm foundation from which to develop comprehensive design guidelines for urban streets.

**Mike Faha**

As a registered landscape architect and founding Principal, Mike's primary professional interest is in creating livable, sustainable communities that balance economic, ecological, and social needs. Mike leads planning and design project teams which integrate urban ecology, green infrastructure, and urban design on a variety of project types. These include civic and institutional, corporate, recreation and open space, public infrastructure, housing and mixed used, and urban revitalization. Mike is adept at working with clients, regulators, stakeholders and the public in creating projects with broad support. His prior employment with engineering, ecological and landscape architectural firms helped to propel him into a leadership role that integrates various professional disciplines, and helps clients meet broad-based community design objectives.

Accessible Design for the Blind



Billie Louise “Beezy” Bentzen

Billie Louise Bentzen founded Accessible Design for the Blind (ADB) in 1992. She is an orientation and mobility specialist, having taught people who are visually impaired to travel independently for more than 30 years. The resources of ADB, as well as the specific projects in which Beezy has been engaged, assure that the Urban Streets Design Guide will be guided by best practice in creating technically accessible, and practically usable pedestrian facilities. While Beezy’s primary expertise is on the access needs of people with visual impairments, through her participation in the Public Rights of Way Access Advisory Committee (US Access Board, Consultant), and the American National Standards Institute Committee A117 on accessible and usable environments, she has become thoroughly familiar with the challenges and needs of people with a wide variety of disabilities. Beezy is also a member of Signals Technical Committee of the National Committee on Uniform Traffic Control Devices, TRB Committee ABE60—Accessible Transportation and Mobility, and is on the steering committee for TRANSED 2012, an international conference on accessible transportation.



Janet Barlow

Janet is a certified Orientation and Mobility Specialist. For the past ten years, Janet’s research has focused on travel by pedestrians who are blind or visually impaired in complex environments, particularly crossing streets, and working in collaboration with transportation engineers and planners on developing solutions to problems. She has been involved in developing and teaching courses on pedestrian accessibility and application of the ADA to the public rights-of-way for the Institute of Transportation Engineers, the Association of Pedestrian and Bicycle Professionals, the Federal Highway Administration, and others. Janet has published numerous articles and assisted in development of pedestrian guides and training related to pedestrian facilities and accessibility to pedestrians with disabilities. She was a peer reviewer for the first AASHTO pedestrian facilities guide, part of the team which developed the APBP and FHWA course on Designing Pedestrian Facilities for Accessibility, and chair of the subcommittee of the Public Rights-of-Way Access Advisory Committee that wrote *Special Report: Accessible Public Rights-of-Way Planning and Design for Alterations*.

Street Plans Collaborative



Mike Lydon, CNU-A

As Founding Principal, Mike leads many of SPC's street design, bicycle master plan, and research projects. Before launching the firm in 2009, Lydon worked for Duany Plater-Zyberk and Company (DPZ), an international leader in the practice of smart growth planning, design, and research techniques. As a planner, writer, and advocate, Mike's work has appeared in or been featured by NPR, *The New York Times*, CNN Headline News, Planetizen, *Grist*, *Utne Reader*, *Next American City Magazine*, *Planning Magazine*, Streetsblog, and a number of other national and local publications. Mike also collaborated with Andres Duany and Jeff Speck in writing *The Smart Growth Manual*, published by McGraw-Hill in 2009, and honored by Planetizen as one of the top ten planning books of 2010. Mike is also the creator and primary author of *The Open Streets Project* and *Tactical Urbanism: Short-Term Action, Long-Term Change* (Vol. 1 & Vol. 2), which was named by Planetizen as one of the top planning trends of 2011 - 2012.



Anthony Garcia

Anthony is Principal of The Street Plans Collaborative. Prior to launching the firm's Miami office, Anthony was Project Director for six years at the Dover Kohl & Partners affiliated architecture firm Chael Cooper & Associates. His work there gave him a strong understanding of urban form at the block and neighborhood scale, policy writing and zoning code analysis. He has directed work on a number of bicycle and pedestrian plans at the scale of street, city, and neighborhood. He combines an understanding of active transportation street design with the necessary and often overlooked urban design policies and that help create successful civic spaces. As the publisher of TransitMiami.com, Tony directs a staff of volunteer writers and planners who work on projects that range from street design analysis to zoning code recommendations. He is also an active Board member of the Green Mobility Network, a Miami-based organization that advocates for greater use of active transportation throughout the region. He is a member of the Dade Heritage Trust, and a founding member of the Miami Chapter of the Congress of the New Urbanism.

Pure+Applied**Paul Carlos**

Paul is a designer and educator. He was formerly the art director of Interiors magazine and was a design associate at Design/Writing/Research and Donovan & Green. He has won numerous awards from the American Institute of Graphic Arts, The Art Director's Club and Society of Environmental Graphic Design. He has taught typography, editorial design, and exhibition design at Parsons, The New School for Design, The Cooper Union and the Maryland Institute, College of Art. Paul has been a juror for the Society of Publication Designers and I.D. magazine and a guest critic or speaker for the AIGA, Columbia University Graduate School of Architecture, MICA, NeoCon, NYU's Integrated Technology Program and Sotheby's Institute. He is a member of the Type Director's Club and the American Institute of Graphic Arts.

**Urshula Barbour**

Urshula is a designer, writer and educator. Her approach draws on a multidisciplinary background that combines design with knowledge of anthropology, social history and public policy. Her work has received recognition from the AAM, AIGA and SEG. Urshula teaches senior thesis at Parsons and has taught at CCNY and Cooper Union. She has been a speaker for events at CFA/AIANY, Columbia University, NeoCon, Penn State, SUNY Binghamton, Tufts, Yale and Sotheby's Institute. She has written for I.D. and for Print magazine. Urshula holds Masters degrees from the New School Graduate Faculty (where she explored the cultural and social construction of olfactory scapes) and from the University of Penn and a bachelors from The Cooper Union. Before founding Pure+Applied, she was a Center for Women in Government Fellow at SUNY, Albany. As a fellow, she researched and wrote about food security and economic security in minority communities.

References

The following individuals and organizations offer their inside perspectives on working on successful projects with members of the KAI Team.

Kittelson & Associates, Inc.

**Ariel Ben-Amos, Planner/Project Manager,
Complete Streets Handbook**
Philadelphia Office of Transportation and Utilities
(215) 686-9001

**Christopher Delfs, Citywide Planner
(formerly of DDOT)**
DC Office of Planning
(202) 442-7604

Jamie Henson, Transportation Planner
District Department of Transportation (DDOT)
(202) 671-1324

**Peter Koonce, Signals and Street Lighting
Division Manager**
City of Portland Bureau of Transportation
(503) 823-5382

Sam Schwartz Engineering

Ben Gomberg, Bicycle Program Coordinator
Chicago Department of Transportation
(312) 744-8093

**Rob Thompson, Senior Project Manager,
Transit Development**
New York City Department of Transportation
(212) 839-6698

Alta Planning + Design

Jim Westmoreland, Deputy Secretary
North Carolina Department of Transportation
(NCDOT)
(919) 733-2520

Catherine Ciarlo, Transportation Policy Director
Office of Mayor Sam Adams
(503) 823-4290

GreenWorks

Carrie Pak, PE, Engineering Division Manager
Clean Water Services
(503) 681-3600

**Linda Dobson, Sustainable Stormwater
Project Manager**
City of Portland Bureau of Environmental Services
(503) 823-5271

Accessible Design For the Blind

Stephan A. Parker, TCRP Senior Program Officer
Transportation Research Board, Cooperative
Research Programs (Div. D)
(202) 334-2554

Kit Keller, Executive Director
Association of Pedestrian and Bicycle
Professionals
(262) 228-7025

Street Plans Collaborative

Stuart Baker, Executive Director
Fund for the Environment and Urban Life
(510) 649-1061

Carlos Gallinar, Comprehensive Plan Manager
City of El Paso
(915) 541-4662

Pure+Applied

Margaret Newman, Chief of Staff
New York City Department of Transportation
(212) 839-6408

Aimee Gauthier, Chief Information Officer
The Institute for Transportation and
Development Policy
(212) 629-8001



Timeline

Table 6 shows the proposed schedule for the *Urban Street Design Guide*. The schedule shows a proposed contract period of 12 months to complete and deliver the Guide, with a 10-20 page preview document prepared by October 2012 for presentation at the NACTO Designing Cities conference. A starting date of July 1, 2012 is assumed; however, this date is flexible and will be adjusted to accommodate the actual contract initiation date.

TABLE 6: PRELIMINARY PROJECT APPROACH AND SCHEDULE

	Jul	Aug	Sep	Oct	Nov	
TASK / ACTIVITY	1	2	3	4	5	
Task 0. Project Management and Oversight						
– Oversight Committee Kick-off Meeting		○				
– Monthly Oversight Committee Conference Calls (See Table 2)						
– Ongoing Project Management						
PHASE 1 PROJECT DEVELOPMENT						
Task 1. Annotated Outline and Guide						
<i>Subtask 1.1. Outreach and Literature Review</i>						
– Conduct NACTO Member Interviews		○				
– Conduct Literature Review						
<i>Subtask 1.2. Annotated Guide Outline</i>						
– Develop Annotated <i>Urban Street Design Guide</i> Outline		○		○		
– Conduct Additional Outreach for Case Studies (As Needed)						
– Document Emerging Issues for Future Exploration				○		
Task 2. Web Development Specifications and Mock Up						
– Initial Web Design Discussion with Oversight Committee						
– Develop Three Graphic Layout Options			○			
– Document Approved Design & Technical Details					○	
Task 3. Develop Draft Content for Three Street/Intersection types						
– Draft Content for Home Zones, Downtown Streets, & Public Plazas				○	○	
– NACTO Designing Cities Conference & Work Session Support					★	
Task 4. Develop Draft Content for Two Critical Design Issues						
– Develop Draft Content for Pedestrian Crossings & Lane Width					○	○
Task 5. Print Format for <i>Urban Street Design Guide</i>						
– Initial Layout Discussion with Oversight Committee						
– Develop Two Graphic Layout Options						○
PHASE 2 FULL CONTENT DEVELOPMENT & LAYOUT						
Task 6. Full Content Development						
– Develop Content for All Critical Issues, Street & Intersection Types						
Task 7. Development, Testing, and Revision of Website						
– Fully Develop Website Using Approved Content						
– Performance Testing and Updates						
Task 8. Layout of Print Guide						
Task 9. Website Roll Out, Media Work, and Support						



[illegible][illegible]

Budget

The following budget reflects our best effort to meet the scope needs and intended quality indicated in the RFP. Our total budget estimate of \$295,000 includes extensive outreach and collaboration with the Project Oversight Committee and NACTO member cities to ensure that the *Urban Street Design Guide* meets practitioners’ needs and is readily implementable. The current budget addresses the 29 street types, intersection types, and critical design issues included in the RFP and up to five additional issues such as those identified by the Team in Task 1 of the Project Approach. The budget estimate includes printing costs for support materials to be used at the NACTO Designing Cities conference in October, but does not include printing costs for review drafts or final versions of the print *Urban Street Design Guide*.

We are willing to work with NACTO to adapt this budget as necessary to fit the available budget and meet changing needs. Potential revisions could include:

- Expanding or reducing the list of critical issues and street/intersection types identified in the RFP. Content development for each issue is estimated at \$2,000 to \$4,000, depending upon complexity and detail.
- Reducing the amount of outreach conducted to NACTO member cities or for case studies of peer communities.
- Shifting leadership of the planned work session at the October Designing Cities Conference to NACTO staff.

TASK	ESTIMATED COST
Task 0. Project Management and Oversight	\$42,000
Task 1. Annotated Outline and Guide	\$42,000
Task 2. Web Development Specifications and Mock Up	\$13,000
Task 3. Develop Draft Content for Three Street/Intersection types	\$20,000
Task 4. Develop Draft Content for Two Critical Design Issues	\$13,000
Task 5. Print Format for <i>Urban Street Design Guide</i>	\$5,500
Task 6. Full Content Development	\$91,000
Urban Street Types	
Boulevards	\$4,000
Downtown/CBD Streets	\$4,000
	(included in Task 3)

TASK	ESTIMATED COST
<i>Neighborhood Commercial</i>	\$4,000
<i>Neighborhood Connectors</i>	\$4,000
<i>Residential Streets</i>	\$4,000
<i>Pedestrian Priority Shared Commercial Streets</i>	\$5,000
<i>Home Zones/Shared Streets</i>	\$5,000 (included in Task 3)
<i>Green Streets/Alleys</i>	\$4,000
<i>Sidewalk cafes & alternative curbside uses</i>	\$4,000
Critical Street Design Issues	
<i>Travel lane width</i>	\$2,000 (included in Task 4)
<i>Design and operating speed</i>	\$2,000
<i>Design vehicle/wheel base</i>	\$2,000
<i>Traffic capacity</i>	\$2,000
<i>Roadside clear zones</i>	\$2,000
<i>Building/frontage zone</i>	\$2,000
<i>Legal standing and liability</i>	\$2,000
<i>Bus stop placement and design</i>	\$3,000
<i>Transit lane design and placement</i>	\$3,000
Urban Intersection Types	
<i>General Intersection Design</i>	\$4,000
<i>“Retrofit” Public Plazas</i>	\$4,000 (included in Task 3)
<i>Intersections near Transit Hubs and Stations</i>	\$4,000
<i>Intersections near schools, parks, waterfronts, and key destinations</i>	\$4,000
Critical Intersection Design Issues	
<i>Pedestrian crossing warrants</i>	\$4,000 (included in Task 4)
<i>Curb extensions</i>	\$2,000
<i>Yield vs. Stop/Signal Control</i>	\$4,000
<i>Turn restrictions</i>	\$2,000
<i>Signal timing and operations</i>	\$3,000
<i>Alternative intersection performance measures</i>	\$3,000
Task 7. Development, Testing, and Revision of Website	\$27,000
Task 8. Layout of Print Guide	\$28,500
Task 9. Website Roll Out, Media Work, and Support	\$9,000
Reimbursables	\$3,500
TOTAL	\$295,000

Appendix: Resumes



Mary Raulerson has dedicated the past 21 years to assisting public agencies in the development of livable transportation solutions for small- and large-scale transportation projects. These projects focus on developing Complete Street solutions that support community goals and future visions, are affordable and provide sound economic development opportunities. Mary has worked extensively throughout the country on a variety of transportation modes and projects, including rail systems, busways, highways, national parks, scenic highways, and bridges, and has a proven track record of working with multidisciplinary teams to develop transportation and land use solutions that are community-driven, sustainable, affordable and meet agency needs. She has worked with state DOTs to develop integrated land use and transportation programs; most recently she led the Smart Transportation Initiative for the Pennsylvania Department of Transportation.

MARY TAYLOR RAULERSON

Principal Planner

EDUCATION

BS Biology, University of Central Florida

YEARS OF EXPERIENCE

21

AFFILIATIONS

Transportation Research Board's Management and Productivity Committee (ABC 20), Member

Women's Transportation Seminar, Member and past officer of Orlando and Philadelphia Chapters

PUBLICATIONS

Transforming Transportation Relationships through Partnerships – Transportation Research Board, Washington, DC (January 2008)

Smart Transportation – What, Why and How? – Pennsylvania Engineering and Safety Conference, State College, PA (December 2007)

Getting Ready for Transit – Making Land Use and Transit Work for You – Canadian Urban Institute and City of Mississauga, Canada (February 2006)

Integrating Land Use and Transportation Planning on the Route 9 Corridor – NJDOT Smart Growth Conference (November 2005)

The Street Manual Hits the Street - Now What? Congress for New Urbanism, Denver, CO (June 2009)

Revitalizing Downtowns with Streetcars – RailVolution (September 2003)

Redesigning Urban Expressways – American Society of Civil Engineers (May 1998)

COMPLETE STREETS

Mary conducts Complete Streets projects for a variety of transportation agencies, including state transportation departments in Florida, Pennsylvania, Washington, DC and New Jersey. These projects focus on developing multi-modal context-sensitive solutions that support community goals and future visions of both the community they serve and the transportation agency. She has developed state, regional and municipal Complete Streets policies and has advanced projects from concept through construction. Representative projects include Route 50 in Lake County, Florida, the Route 202 Section 700 Parkway in Bucks and Montgomery Counties, Route 41 in Chester County, and Route 23 in Lancaster County, Route 9 in Ocean County, NJ, and numerous historic bridges and multi-use trails in the Philadelphia area.

LIVABLE TRANSPORTATION

Mary has conducted livable transportation and integrated land use/transportation projects for the Pennsylvania Department of Transportation and the New Jersey Department of Transportation. These projects focus on developing context-sensitive solutions that support community goals and future visions, are affordable and provide sound economic development opportunities. Representative projects include the Marshalls Creek Traffic Relief Project, Route 202 Section 700 Parkway in Bucks and Montgomery Counties, Route 41 in Chester County, and Route 23 in Lancaster County, Route 9 in Ocean County, NJ, and numerous historic bridges in the Philadelphia area.

TRANSIT PLANNING

Mary has completed transit corridor and station area plans for numerous transit agencies across the country. Representative projects include the Euclid Corridor Bus Rapid Transit Project in Cleveland, Second Avenue Subway in New York, North Shore Connector in Pittsburgh, Anacostia Waterfront Transit Demonstration project in Washington, Tampa Regional Rail Study, Grand Rapids Transit Systems Plan, Central Florida Commuter Rail Station Area Plan, and Charlotte Northeast Corridor Station Area Plan.

POLICY DEVELOPMENT AND IMPLEMENTATION

Mary developed transportation policy for the Pennsylvania, New Jersey and Florida Departments of Transportation, and several transit agencies. The focus of these policies is the integration of land use and transportation decisions and investments. Representative work includes the Smart Transportation Guidebook for Pennsylvania and New Jersey, Project Delivery Process for the Pennsylvania Department of Transportation, Land Use Strategies for the Charlotte-Mecklenburg Planning

Commission, Land Use Assessment Methodologies and Noise Mitigation Strategies for the Florida Department of Transportation.

ENVIRONMENTAL PLANNING AND NEPA

Mary prepared over 25 National Environmental Policy Act (NEPA) documents including Environmental Impact Statements (EIS), Environmental Assessments (EA) and Categorical Exclusions (CE) for more than \$ 8 billion dollars of public investment. Clients have included the Washington Metropolitan Area Transit Authority, New York City Transit, Port Authority of Allegheny County, Interurban Transit Partnership, the Greater Cleveland Regional Transit Authority, the Florida Department of Transportation, and the National Park Service.



Jessica Horning is a Transportation Planner with experience leading and supporting pedestrian and bicycle transportation planning, research, facility evaluation, and design projects in the Portland region and nationwide. Jessica has served as Deputy Project Manager for multiple long-range multimodal and Transportation Demand Management (TDM) planning efforts, which have aided jurisdictions in developing and marketing alternatives to driving alone (e.g., biking, transit, telework). Her project experience also includes development impact analysis, multimodal safety analysis, transit systems planning, and geographic information systems (GIS). Jessica is an effective communicator and an active member of the non-motorized transportation community.

JESSICA R HORNING

Planner

EDUCATION

Master of Urban and Regional Planning, University of Minnesota

Transportation Studies Certificate, University of Minnesota

Bachelor of Arts Anthropology, Macalester College

YEARS OF EXPERIENCE

5

AFFILIATIONS

Association of Pedestrian and Bicycle Professionals, Member

Women in Transportation Seminar, Member

American Planning Association, Member

Transportation Research Board Bicycle Committee, Friend of the Committee

PRESENTATIONS

"Moving Forward Pedestrian and Bicycle Planning in Suburban/Rural Communities: The Washington County, OR Experience." Oregon Active Transportation Summit, April 2012

"The Misuse of Traffic Engineering and Its Impact on Active Transportation." Oregon Active Transportation Summit, April 2012

PUBLICATIONS

Jessica Horning, Kevin J. Krizek, and Ahmed El-Geneidy. "Perceptions of Accessibility to Neighborhood Retail and other Public Services." *Accessibility and Transport Planning: Challenges for Europe and North America*. Edward Elgar Nectar Series, Vol. X. (Forthcoming August 2012)

Ahmed El-Geneidy, Jessica Horning, and Kevin J. Krizek. "Analyzing Transit Service Reliability Using Automated Vehicle Locator Data." *Journal of Advanced Transportation*. Vol. 45, Issue 1. (May 2010)

COMPLETE STREET PLANNING & DESIGN

Jessica is Deputy Project Manager for the *Philadelphia Complete Streets Design Handbook*. She also has experience evaluating local and regional streets to assess the feasibility of reallocating roadway space to improve multimodal access and safety. Specific project experience includes evaluating road diets and alternative improvements for corridors in Prince George's County, MD; Philadelphia, PA; and Portland, OR. At the national level, she has supported development of the *FHWA Primer on the Role of Management & Operations in Supporting Livability and Sustainability*, and the *NCHRP 7-17 Guide for Prioritizing Pedestrian and Bicycle Improvements along Existing Roads*.

PEDESTRIAN AND BICYCLE PLANNING

Jessica has extensive experience in planning for pedestrians and bicyclists at the local, regional, and state level. Jessica has served as Deputy Project Manager for the development of the statewide *Maryland Trails Plan*, *Tigard, Greenway Trail System Master Plan*, and the *Washington County Bicycle Design Toolkit*. For the City of Portland and other jurisdictions, Jessica has assisted with technical feasibility analysis and project development for projects showcasing innovative bikeway designs (cycle tracks, buffered bike lanes, and bicycle boulevards). Her experience also includes: alternatives development and analysis, public outreach, safety analysis, cost estimation, and implementation strategy and policy development.

GUIDEBOOK DEVELOPMENT

Jessica has assisted multiple agencies in developing practitioners' guidebooks to improve multimodal planning and integrate pedestrian and bicycle facilities into existing roadway design standards and funding processes. Specific project experience includes the *FHWA Primer on the Role of Management & Operations in Supporting Livability and Sustainability*, *Washington County Bicycle Design Toolkit*, *Philadelphia Complete Streets Design Handbook*, *NCHRP 7-17 Guide for Prioritizing Pedestrian and Bicycle Improvements along Existing Roads*, and *NCHRP 7-19 Guide for Collecting Pedestrian and Bicycle Volume Data*.

PUBLIC INVOLVEMENT

Jessica has developed and implemented public engagement programs to involve stakeholders in a variety of projects at the local, regional, and state level. Jessica is co-creator and instructor of a half-day workshop on Innovative Public Involvement Techniques for Pedestrian and Bicycle Projects for the Initiative for Bicycle and Pedestrian Innovation (IBPI) at Portland State University. The workshop introduces fundamentals of public involvement and non-motorized planning, as well as techniques to engage community members in identifying and prioritizing pedestrian and bicycle improvements.



Mike Coleman's planning and traffic engineering career spans more than 25 years, primarily as a steward of Portland Oregon's rights-of-way and transportation system. Mike's extensive experience in the daily operations of a community's transportation system distinguishes him from most of his consultant colleagues and has proven to be a significant asset to many communities. Since joining KAI, he has continued providing traffic engineering expertise on right-of-way improvements that opened opportunities for broader comprehensive community benefits. Mike has an extensive history of successfully working with engineering, architectural, planning, and maintenance professionals; citizens and their elected representatives; and a wide range of public agencies to develop, design, construct, operate, and maintain a community's transportation system. Mike draws on his substantial public works and public administration experience as a traffic engineering team leader, city liaison to state highway and rail agencies, regional transit agencies, heavy gauge railroads, and district business and neighborhood associations.

MIKE A. COLEMAN, PE

Associate Engineer

EDUCATION

BS Civil Engineering, Pennsylvania State University

YEARS OF EXPERIENCE

28

LICENSES

PE: OR

AFFILIATIONS

Institute of Transportation Engineers, Member

League of Oregon Cities, Member

American Public Works Association, Member

COMPLETE RIGHTS-OF-WAY

Mike has managed and supplied direct traffic engineering support to a variety of transit, bicycle, pedestrian, and freight projects. He also oversees, reviews and provides technical advice on many additional multimodal projects.

Projects include developing and implementing the traffic engineering aspects of Portland's bicycle, pedestrian and freight mobility design guides and master plans. Mike has provided creative and technical support to a number of projects that enhanced residential livability, neighborhood commercial vitality, and safe routes to school.

Specific projects include the Division Corridor project, which diverted commuter traffic from neighborhood streets, accommodated the diverted traffic on more appropriate streets and established bike boulevards. Current work in the Corridor is focused on developing, designing and constructing a complete street makeover of Division Street's neighborhood commercial district. The project will decrease the number of traffic lanes, increase onstreet parking, enhance transit service, widen sidewalks, enhanced key pedestrian crossing locations, preserve mature street trees, add stormwater swales, incorporate public art and increase bike parking. The project will help improve transit times and reliability, revitalize adjacent retail uses, and soften the barrier created by Division Street's high traffic volumes and threatening vehicle speeds.

The Burnside/Westover Improvement project consisted of rearranging the street network and adding right-of-way amenities to foster retail development while also discouraging drivers from cutting through adjacent neighborhoods. Mike implemented one of the very first "road diets" by reducing a four-lane section of the Hawthorne Commercial District to three lanes. The resulting benefits to the street's pedestrian environment have contributed to the District's emergence as a thriving focal point for the community.

DISTRICT REDEVELOPMENT

Mike provided technical expertise and management oversight to develop, design, and implement the multimodal transportation networks that serve several redeveloped mixed use districts in Portland. Specific districts include Cascade Station near Portland International Airport, Hayden Island in the Columbia River, the Pearl District in the former Union Pacific railroad yards, South Waterfront in former brownfields along the Willamette River, and the Gateway Regional Center that is focused around a key intersection of light rail lines. He recently supported a plan intended to help revitalize Portland's Lents Town Center, one of Portland's reemerging neighborhoods. These projects consist of carefully and strategically integrating traffic circulation; parking; freight delivery; pedestrian; bicycle; and bus, streetcar, and light rail transit networks to serve new dense vibrant mixed-use communities.

STAKEHOLDER AND AGENCY COLLABORATION

Mike has extensive experience working collaboratively with local and state transportation agencies; transit providers; and freight industry, bicycle, and pedestrian advocates to address mobility, access and end-of-trip needs. This is best exemplified by his working relationships in Portland. Mike is well regarded among PBOT's Bicycle and Pedestrian Liaisons and community advocacy groups. He works regularly with TriMet's light rail and bus transit operations and Portland Streetcar Inc.'s managers. Mike is currently leading KAI's traffic design role in TriMet's next light rail extension between downtown Portland and Milwaukie. He is also providing the traffic engineering expertise on seven bike projects in the Portland area. Mike recently completed Portland's Central Eastside Street Plan. It included addressing the needs of cycling, pedestrian circulation, future streetcar service, and onstreet parking management. Developing the Plan also involved extensive collaboration with City staff and regular meetings with the District's business association and citizen advisory committee.



Scott specializes in traffic operations, signal systems, and intersection design. His experience includes transit signal priority implementation; signal design and modification; signal timing analysis, development, and implementation; corridor safety and operations analysis; and pedestrian crossing treatments. He has hands-on experience with a number of controller types and software. Scott is engaged in the signal systems practice at a national level through research and participation in committees. He is a member of the NCUTCD Signals Technical Committee, which provides a current understanding of advances in the signal systems practice and changes to the MUTCD.

SCOTT BEAIRD, PE, PTOE

Senior Engineer

EDUCATION

MS Civil Engineering, University of Tennessee

BSE Civil Engineering, Northern Arizona University

YEARS OF EXPERIENCE

10

LICENSES

PE: OR

Professional Traffic Operations Engineer (PTOE)

AFFILIATIONS

National Committee on Uniform Traffic Control Devices, Signals Technical Committee, Member

City of Bend Accessibility Advisory Committee, Member

Transportation Research Board Signal Systems Committee, Friend

Industrial Advisory Council, Oregon Institute of Technology, Member

Institute of Transportation Engineers, Member

PUBLICATIONS

Koonce, Lindstrom, Urbanik and Beaird. *Improving the Application of Transit Signal Priority Using the NTCIP 1211 Standard*. ITE Journal, 2008.

Beaird, Urbanik and Bullock. *Traffic Signal Phase Truncation in the Event of Traffic Flow Restriction*. Transportation Research Record, 2006.

TRANSIT SIGNAL PRIORITY

Scott has experience in evaluating and implementing TSP solutions in various jurisdictions including Denver, Colorado; Portland, Oregon; and Anchorage, Alaska. As part of a consultant team, Scott worked with transit providers and multiple traffic agencies in the DRCOG region to gauge their ability to implement TSP. In addition to his applied experience with TSP, Scott conducted research for the Federal Transit Administration, which centered on the application of transit signal priority (TSP) using the NTCIP 1211 standard.

TRAFFIC SIGNAL SYSTEMS/ITS

Scott provides a wealth of knowledge with respect to traffic signal systems and ITS. He is experienced with various traffic controller standards, including the NEMA, Model 170 and 2070 standards, and is well versed in signal timing software such as Synchro. Scott has managed major signal system timing projects in various parts of the country and has analyzed and timed hundreds of traffic signals.

RESEARCH AND EDUCATION

Scott was a contributing author to the first edition of the *FHWA Signal Timing Manual*. The purpose of the *Signal Timing Manual* is to provide signal timing practitioners with a practical and user-friendly guide, focused on the principals of traffic signal timing and documentation of best practices.

Scott shares his understanding of signal systems with other professionals by teaching a course on traffic signal timing. The course covers traffic signal timing and operations principles, concepts and criteria.

TRAFFIC SIMULATION MODELING

Scott has extensive experience modeling traffic operations using the VISSIM microsimulation package. His microsimulation experience includes research, planning, and operational applications. He has considerable experience interfacing simulation models with actual signal controller hardware.



Charles has nearly two decades of experience through his involvement in a wide range of transportation engineering projects throughout the Pacific Northwest. Charles has overseen and/or managed hundreds of publicly-funded traffic-engineering projects and dozens of on-call contracts. Many of these projects include working with other consulting engineering firms to form a project team for various public jurisdictions. He has prepared final plans, special provisions, and cost estimates (PS&E) on traffic engineering projects featuring permanent and temporary traffic signals, roadway signing, pavement markings, pedestrian-scale and highway lighting, and traffic control plans. His breadth of project types includes developing improvements at freeway interchanges, along rural highways and suburban arterials, and within urban business districts. He served on the Oregon Traffic Control Devices Committee (OTCDC) from 1999 to 2011 addressing key statewide transportation issues such as Oregon's adoption of periodic updates to the MUTCD. He currently serves as Public Works Manager for KAI's Portland office.

CHARLES RADOSTA, PE

Associate Engineer

EDUCATION

BS Civil Engineering, Oregon State University

YEARS OF EXPERIENCE

19

LICENSES

PE: CA, ID, OR, WA

PE (Traffic): OR

AFFILIATIONS

American Public Works Association (APWA),
Member

American Society of Civil Engineers (ASCE),
Member

Institute of Transportation Engineers (ITE),
Member

Illuminating Engineering Society (IES),
Associate

2ND STREET STREETSCAPE IMPROVEMENTS, LAKE OSWEGO, OR

KAI is leading a multi-disciplinary team to develop streetscape improvements for the City of Lake Oswego. The Lake Oswego Redevelopment Agency (LORA) is enhancing Second Street between "A" and "B" Avenues to comply with the beautification goals of the East End Redevelopment Plan. KAI is developing plans covering new LED street lights, roadway and sidewalk enhancements, and electrical receptacles for holiday lighting. Meanwhile the landscape architect and civil subconsultants are addressing new stormwater facilities, street trees, plantings, and drainage inlets. The project is currently under final design. Charles is serving as the Project Manager and QA/QC reviewer.

BROADWAY AVENUE IMPROVEMENTS, SPOKANE VALLEY, WA

KAI, as a member of a consultant team for the City of Spokane Valley, recently developed corridor improvements along Broadway Avenue. The project included restriping the roadway from four travel lanes to three lanes and adding bicycle lanes. KAI analyzed the four existing signalized intersections along the corridor to determine the proper signal phasing to implement with the striping change. KAI also reviewed the existing striped pedestrian crossing locations to determine proper treatment recommendations. KAI designed traffic signal modification plans at the existing locations along the corridor in close coordination with the City and WSDOT. Charles served as the Project Principal and QA/QC reviewer.

N ROSA PARKS IMPROVEMENTS, PORTLAND, OR

KAI, through its on-call contract with the City of Portland, recently developed traffic signal modifications at the N. Rosa Parks intersections with Interstate 5. The overall project included restriping the corridor to add bicycle lanes and median islands. KAI designed traffic signal modification plans two ramp terminal intersections in close coordination with the City and ODOT. The southbound I-5 ramp intersection featured a bicycle signal display which required approval from FHWA. Charles served as the Project Principal and QA/QC reviewer.





Mark de la Vergne is an Associate and Project Manager with Sam Schwartz Engineering. Mark has 10 years of traffic engineering and pedestrian safety experience. He has extensive experience related to pedestrian safety and mitigation strategies in the urban context. He also has worked on a number of innovative outreach projects, including the Wicker Park Bucktown Master Plan which was recognized by the American Planning Association in 2010 with its National Excellence Award for Outreach. Mr. de la Vergne graduated from the University of Pennsylvania with a Bachelors of Science in Systems Engineering, with a focus in Transportation. Mr. de la Vergne currently serves on the Board of Directors of the Association of Pedestrian and Bicycle Professionals, where he chairs the research committee, and serves on the steering committee of America Walks.

RELEVANT EXPERIENCE

Streets for Cycling Plan 2020, Chicago, IL

Mr. de la Vergne is currently the project manager for the City of Chicago Streets for Cycling Plan 2020. The plan will identify 150-250 miles of new bike facilities that will encourage Chicago's youngest and oldest residents to ride on city streets. These include cycle tracks, bicycle boulevards, bicycle preferred streets, and innovative intersection treatments. The project includes an exhaustive public outreach process including a Facebook site (www.facebook.com/streetsforcycling2020), nine Community Advisory Groups, a pop-up Open House meeting, and traditional public meetings.

City of Chicago Pedestrian Plan – Phase II, Chicago, IL

Mr. de la Vergne is currently the Project Manager for the City of Chicago Pedestrian Plan Phase. SSE is the lead consultant of the project and Mr. de la Vergne leads all aspects of the project. The Plan will include engineering tools to make Chicago's streets safer and a number of bold, innovative policies to make Chicago the most pedestrian friendly city in the United States. Mr. de la Vergne also led a citywide outreach process that included seven public meetings and the development of a website (<http://www.chicagopedestrianplan.org>). The draft Pedestrian Plan is expected to be complete by December 2011.

Wicker Park Bucktown Master Plan, Chicago, IL

Mr. de la Vergne provided transportation master planning services for the Wicker Park Bucktown neighborhoods in Chicago, Illinois. He provided recommendations for improving the bicycling infrastructure in the neighborhood including colored bicycle lanes, bike boxes at all signalized intersections, bike signals, and additional secure bike parking. He also created strategies for increasing the number of bicycle riders in the area through marketing and advocacy. Improvements to the pedestrian experience included a pedestrian scramble at the main intersection of the

Relevant Expertise

- Project Management
- Pedestrian Safety

Education

- B.S. in Systems Engineering
University of Pennsylvania, 2000

Professional Affiliations

- Association of Pedestrian and Bicycle Professionals, Board Member
- America Walks, Steering Committee
- Institute of Transportation Engineers
- American Planning Association
- Active Transportation Alliance

Presentations

- 2011 American Planning Association National Conference
"Make it Happen Now: Immediate Term Implementation"
- 2010 Greater North Michigan Avenue Association
"Creating Pedestrian Space"
- 2010 Transport Chicago
"Re-Thinking Urban Freeways"



neighborhood, pedestrian countdown signals, larger sidewalks, and reduced the crossing distances at intersections. Mr. de la Vergne also provided recommendations for pricing on-street parking correctly, sharing loading zones, and improving valet operations. He developed creative solutions for improving safety for all users at a number of intersections. A number of the features of the plan have been implemented, including the City's first public bus trackers, improvements to the intersection, and an additional study on loading zones. The neighborhood will also be receiving the first on-street bike parking space in the City of Chicago.

This project was awarded the National Planning Excellence Award for Public Outreach from the American Planning Association (2010), the Special Achievement Award from the American Council of Engineering Companies - Illinois (2010), and a Charter Award from the Illinois Chapter of the Congress for New Urbanism (2009).

College Hill Corridor Master Plan, Macon, GA

Mr. de la Vergne completed a master plan in Macon, GA to establish biking and walking connections between Downtown Macon and Mercer University. He designed a number of on-street bike lanes within the existing roadway width to create a bicycling infrastructure system in the City. He provided recommendations for bike parking and bike boxes as well as advocacy/marketing strategies to create a bicycling community in Macon. He recommended additional sustainable transportation initiatives such as car sharing and bike sharing.

University of Chicago Traffic and Parking Study, Chicago, IL

Mr. de la Vergne was the Project Manager for the University of Chicago Traffic and Parking Study. The purpose of the study is to mitigate existing traffic and parking issues as well as make the campus more walkable and bikeable. Recommendations included calming traffic on the Midway Plaisance to provide a cycle track, new bike lanes on 59th Street and 60th Street, a contra-flow lane on 57th Street to improve Lakefront access, and recommendations for bike parking.

Loyola Connections Study, Chicago, IL

Mr. de la Vergne was the Project Manager for a study to improve pedestrian and bicycle connections at Loyola University's Rogers Park campus. Recommendations included re-striping the existing bike lanes on Winthrop Avenue and Kenmore Avenue, developing a new contra-flow lane, and incorporating a new bike trail along the CTA tracks as part of future development.



Douglas Adams is a director and associate specializing in active transportation planning and design, environmental planning, and community outreach. He manages transportation planning studies and works to improve the multi-modal transportation efficiency of urban spaces. Mr. Adams's areas of expertise include complete and shared streets, bicycle facility planning, pedestrian planning and safety, and transportation demand management. He is currently designing 3.5-miles of protected bicycle lanes under the Chicago Streets for Cycling program; the first on-street bicycle facilities in Allentown, Pennsylvania; and the conversion of 2.2-mile Spring Garden Street in Center City Philadelphia from a standard street to an urban greenway. His projects have received numerous awards from the American Council of Engineering Companies.

RELEVANT EXPERIENCE

Spring Garden Street Greenway, Philadelphia, PA

Mr. Adams is the Project Manager for the Spring Garden Street Greenway, one of central Philadelphia's major east-west arterial streets, that has been identified as a potential link in the East Coast Greenway, and also connects the Schuylkill and Delaware River Greenways. The SGSG project seeks to reconfigure the street to include an on-street greenway in the form of a median greenway or parking-protected bikeway. Mr. Adams responsibilities include managing a multi-disciplinary team responsible for traffic analysis, urban design, public outreach, stormwater impact mitigation, and economic benefit analysis.

Water Street Vision Plan, New York, NY

To improve the desirability of this important commercial corridor, Mr. Adams created a design concept calling for a variety of streetscape and multi-modal improvements. The street was previously designed to accommodate a large volume of rapidly moving traffic. Working closely with business and real estate owners and other stakeholders, Mr. Adams developed a design concept that takes advantage of excess street capacity and calms traffic, creates lush new pedestrian spaces, improves bus operations, meets the needs of bicyclists, and improves traffic flow.

Chicago Streets for Cycling, Chicago, IL

Mr. Adams manages the engineering and design of a significant portion of the lanes to be implemented in 2012. Chicago seeks to become the most bicycle-friendly city in the US and plans to construct an unprecedented 100 miles of protected bicycle lanes between 2012 and 2015.

Jersey Avenue Extension, Jersey City, NJ

This project would extend Jersey Avenue from central Jersey City to Liberty State Park, providing more convenient access to the park and greater connectivity in general, relieving traffic congestion in nearby neighborhoods and allowing the redevelopment of several brownfields.

Education

- **Master of Urban Planning**
New York University, 2006
- **Certification, Geographic Information Systems**
Kennesaw State University, 1999
- **B.A., Studio Art**
Humboldt State University, 1990

Professional Associations

- American Institute of Certified Planners
- American Planning Association
- Association of Pedestrian and Bicycle Professionals
- Geospatial Information & Technology Association, 2000-2004, Southeast Chapter president-elect, treasurer, and board member

Presentations

- APA national conference:
 - Tactical Urbanism: Short Term Action, Long Term Change (2012)
 - Rethinking Urban Freeways (2010)
 - Reclaiming and Reconnecting the Urban Waterfront (2009)
 - AICP Exam Preparation (2008)
- NJ TransAction Conference: Mt. Prospect Avenue – NJ's First On-Street Protected Bike Route (2011)
- NJIT Honors College Colloquium: One Bike Lane Does Not Fit All: Designing Bikeways for (Almost) Everyone (2011)

Honors and Offices

- American Council of Engineering Companies, New York Chapter:
 - Brooklyn-Queens Expressway Enhancement Study (Diamond, 2011)
 - 2009 President Inauguration, Pedestrian and Charter Bus Logistics (Silver, 2010)
 - Greater Gansevoort Urban Improvement Project (Gold, 2008)
- APA Robert Weinberg Urban Planning Student of the Year (2006)
- NYU President's Service Award for Leadership (2006)
- NYU Merit Scholarship (2005-2006)
- Community Advisory Board, Kennesaw State University, Georgia (2000-2004)
- Zoning Board of Appeals, Decatur, Georgia (1999-2004)



Mr. Adams developed a series of design concepts for the corridor, applying *complete streets* principles to accommodate automobiles and light rail users and provide superior bicycling and pedestrian facilities. Taking a context-sensitive approach, the concepts varied based on adjacent land uses and available right-of-way.

Greater Gansevoort Urban Improvement Project, New York, NY

Mr. Adams conducted study examining vehicle and pedestrian issues in the Gansevoort Market and adjacent portions of Chelsea neighborhoods in relation to the area's dramatic transition from predominately industrial uses to a twenty-four-hour mixed-use district. He managed analysis of area's vehicular access, circulation and congestions; pedestrian safety; taxi activity; and truck access. He recommended improvements to balance divergent land uses, accommodate increased development pressures, and highlight the area's historic character through the creation of a new plaza, a variety of traffic calming measures, street direction changes, and significant expansion of pedestrian space.

Allentown Pedestrian and Bicycle Plan, Allentown, PA

Douglas Adams managed SSE's design of the city's first on-street bicycle route. The new route forms a 5-mile east-west spine of a new on-street bicycle network linking downtown to the greenway system. Mr. Adams developed three design alternatives for delineating the route, including enhanced sharrows, buffered bike lanes, and parking-protected bike lanes. The selection of the final preferred alternative is based on traffic analysis and significant community involvement. The route is scheduled for construction in 2012.

Newark Citywide Streetscapes Design: Mt. Prospect Avenue Protected Bikeway, Newark, NJ

Mr. Adams was the bicycle planning manager for this streetscape project, which will create New Jersey's first parking-protected bicycle lane. Working with the traffic engineering and landscape architecture team, Mr. Adams developed the initial protected bike lane design concept, provided on-going review as the concept was further developed and refined with the City, and facilitated community outreach regarding the concept and related streetscape improvements.

Newark Master Plan Mobility Element, Newark, NJ

Mr. Adams manages the bicycle component of the update to the Newark Master Plan, which includes the creation of a bicycle route master plan map and associated recommendations for improving and expanding bicycle infrastructure in New Jersey's largest city. The bicycle route planning effort included input from the public, the Brick City Bicycle Collective, the East Coast Greenway, and other stakeholders.



Vice President, General Manager, Los Angeles

Mr. Widstrand, Vice President and General Manager of SSE's Los Angeles office, has 19 years of experience working on various traffic and transportation projects for both public and private agencies. Mr. Widstrand comes to SSE from the City of Seattle where he worked in the Seattle Department of Transportation for five and a half years. He was the City Traffic Engineer for two and half years where he managed a group of 35 engineering and technical staff representing Arterial Operations, Neighborhood Traffic Control, Pedestrian/Bicycle Program and Neighborhood Project Design. Immediately prior, Mr. Widstrand worked 8 years with David Evans & Associates, a large west coast A/E firm, where he focused his efforts on supporting public agencies with the development, strategic planning, and design of large-scale transportation projects. In addition, Mr. Widstrand has experience working as a consultant in Chicago. Mr. Widstrand is a licensed Civil Engineer in California, Illinois and Washington.

PRIOR EXPERIENCE

Seattle Department of Transportation, Seattle, Washington (January 2006 - July 2011)

Mr. Widstrand served as City Traffic Engineer and Manager of Traffic Operations in the Traffic Management Division where he managed a group of 35 engineering and technical staff representing Arterial Operations, Neighborhood Traffic Control, Pedestrian/Bicycle Program and Neighborhood Project Design. Annual program budget was approximately \$15 million. He represented the Traffic Management Division and SDOT on technically complex and high-profile multi-agency and multi-modal projects. In addition, Mr. Widstrand recommend policy changes related to channelization and signing on roadway network, approved pedestrian and bicycle improvements, developed improvements for high collision locations, participated on inter-departmental teams for high profile transportation projects; presented traffic modifications to the public and key stakeholders. He also implemented recommendations from the Bicycle Master Plan and Pedestrian Master Plan, and coordinated with transit service providers to implement transit improvements on city streets. Mr. Widstrand reviewed and made recommendations concerning proposed transit improvements for bus, streetcar and light rail service. He also represented the City in litigation involving traffic operational issues. Authority for traffic decisions made as defined in the Seattle Municipal Code. Mr. Widstrand made technical presentations to Mayor, City Council, public stakeholders and City modal advisory boards (bicycle, pedestrian and freight).

Mr. Widstrand previously served as Arterial Operations Supervisor in the Traffic Operations Group where he supervised five engineering staff. He was responsible for high collision program to identify corrective actions at high collision locations. Mr. Widstrand also reviewed and recommended signing and channelization modifications for arterial streets within the City

Relevant Expertise

- Project Management
- Full Traffic Impact Analysis
- Parking Analysis
- Multi-modal Traffic Operations

Education

- B.S. in Civil Engineering
University of Illinois, 1992

Professional Registrations

- Professional Engineer, California, Illinois, Washington
- Professional Traffic Operations Engineer

Professional Affiliations

- Institute of Transportation Engineers



of Seattle, and reviewed capital project and developer designs from the perspective of arterial operations. In addition, he responded to citizen inquiries and other departmental requests related to arterial operations.

David Evans and Associates, Inc., Bellevue, Washington (May 1998 - January 2006)

Mr. Widstrand's experience consisted of supporting public agencies with the development, strategic planning, and design of large-scale transportation projects and managing private development traffic studies. He managed projects examining arterial improvements and alternatives development for transit service through urban areas and development of transit signal priority design plans for over 40 intersections as well as supervised the traffic analysis for HOV direct access ramp alternatives and managed the PS&E delivery for intersection geometric improvements. He also coordinated with multiple agencies to gain consensus regarding proposed improvements and presented recommendations to the public at numerous meetings. Representative projects included:

- **Kirkland Intersection Improvement Initiative,** Kirkland, WA

Mr. Widstrand served as project manager, coordinated with the City of Kirkland and worked with the project team to identify intersection deficiencies and to develop recommendations for potential improvements. A list of possible improvements consisting of capacity improvements, signal modifications, upgrades to the type of intersection control, safety improvements, and transit-related improvements was developed. This procedure facilitated the development of recommendations for short-term improvements at 42 intersections and long-term improvements at 15 of those intersections.

Barton-Aschman Associates, Inc. (now Parsons Transportation Group), Chicago, IL (August 1996 - April 1998)

Experience consisted of preparing traffic studies for a variety of clients including public sector, institutional, and private sector developers. Specific tasks included: capacity analysis at intersections, estimation and assignment of site-generated traffic, analysis of future conditions, writing of technical memoranda, preparing signal warrant analyses, and supervision of field crews for data collection.

Meridian Engineers & Planners, Inc. (now Jacobs), Chicago, IL (January 1993 - August 1996)

Experience consisted of transportation planning and traffic engineering for long-range planning studies, sub-area transportation studies and municipal transportation plans. Specific tasks included: participation at over twenty public meetings and hearings, determination of conceptual roadway and intersection geometry, traffic analysis, development of



Vice President, General Manager, Los Angeles

alternative corridor routing, determined deficient roadway links and wrote technical reports.

Joe Gilpin

Principal

Joe Gilpin brings a diverse background, including international perspectives, in bicycle and pedestrian advocacy, education, design, and planning to Alta. Joe provides technical and analytical research and writing, fieldwork and site analysis, mapping, data analysis, facility design, and creative services to the firm.

Joe is one of Alta's experts in bicycle facility design and has worked both as a project designer on numerous projects, and as a planner analyzing network connectivity and corridor planning. Joe currently manages projects in the Rocky Mountain States including Utah, Colorado, Montana, Idaho, and Alaska.

Recent Projects

- **National Association of City Transportation Officials (NACTO) - Cities for Cycling Urban Bikeway Design Guide**

Joe is working as project manager to develop the second module for the Urban Bikeway Design Guide for NACTO. The guide was a groundbreaking effort to create a new toolbox of America's best bicycle infrastructure solutions, and serves as an urban version of the federal and state processes by creating solutions developed by cities, for cities. The website version of the guide allows a close look at experience gained to date, with regular content updates created collaboratively with NACTO bicycle program professionals. As part of the NACTO guide, Joe helped develop design guidelines for cycle track facilities based on numerous existing installations. These guidelines are the first resource on cycle track design in the United States for urban practitioners.

- **Agency Design Guidelines (Various Locations)**

Joe has overseen the production of specific design guidance for bicycle, pedestrian, trail and complete streets treatments for a variety of clients including: Los Angeles (CA), Chicago (IL), Salt Lake County (UT), Provo (UT), the Province of Ontario, Leon (Mexico), Guadalajara (Mexico), and Dubai (UAE).

- **Los Angeles County Bikeway Master Plan, CA**

Alta was commissioned in 2004 to lead the update of Los Angeles County's Bicycle Master Plan. As part of the project, Alta evaluated twelve major transit hubs within the County and proposed improvements to the existing bicycle infrastructure to facilitate bicycle-transit transfers. Joe led development of the 'City of Los Angeles Bicycle Facility Technical Design Handbook', a stand-alone document of design guidelines that will help City and DOT engineers implement the recommendations contained within the Bikeway Master Plan. This document provided a comprehensive set of guidelines for the myriad of design challenges faced by project designers in the Los Angeles Area, from signal detection to bike boxes and cycle tracks.

- **Chicago Streets for Cycling 2020**

Joe led Alta's efforts to create a user guide for Chicago area residents to understand the purpose of, and to instruct proper use for the new bicycle facilities including cycle tracks, bike boxes, etc. The guide provides guidance from the perspective of drivers and bicyclists.



Professional Highlights

- Alta Planning + Design, 2007-
- Planner, RRM Design Group, 2004-2006
- Executive Director/Board President, San Luis Obispo County Bicycle Coalition, 2003-2006
- Bicycle Coordinator, SLO Regional Transit Authority, 2003-2004

Education

- MS, Transportation Planning, Oxford Brookes University, United Kingdom, 2002
- BS, Civil Engineering, California Polytechnic State University, San Luis Obispo, California, 2001

Selected Presentations

- "NACTO Urban Bikeway Design Guide", 2011, ITE Webinar, APBP Webinar, JEC Montana Conference
- "Planning for Pedestrians and Bicycles" May 2008, IES-APA Conference, Priest Lake, ID
- "Walkable Places - Creating Thriving Downtowns and Neighborhoods" June 2006, Arizona Historic Preservation Conference, Phoenix, AZ
- "A Bike Runs Through It" October 2005, APA Conference, Yosemite, CA
- "Bike Trails for Planners - a mobile workshop" October 2005, APA Conference, Yosemite, CA
- "Take a Walk on the Wild Side! Exploring New Techniques in Walkable Communities" September 2005 California Downtown Association Conference, Palm Springs, CA
- "Bike First Incentive Program" September 2005 Walk & Roll California (CBC), Ventura, CA

Nick Falbo

Planner

Nick Falbo joined Alta in 2010 and has since worked on a wide array of bicycle and pedestrian plans and projects. He specializes in research, design and application of complete streets concepts for urban and rural roadways, and he appreciates the nuances of such design elements. Nick is a strong proponent of using visual communication in planning, and this comes through on each of his projects in the presentation of his data analysis, GIS, and high quality graphic work. He believes the community building potential of active transportation, and enjoys rolling through his neighborhood every day at a speed that allows him to stop, look around, and make friends.

Recent Projects

- **NACTO Cities for Cycling Urban Bikeway Design Guide**
The National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide provides knowledge, references, and design guidance for the development of innovative bikeway facilities. Nick assembled the initial draft of written guidance for the 22 NACTO treatments, and created the best practice annotated design drawings displayed in the final publication. Nick was responsible for integration of guidance into the website format, and worked closely with the web developers to make sure guidance references, treatment illustrations and example photographs were presented in a clear, easy to access format.
- **Broadway Multimodal Transportation Options Study, Vancouver, BC**
Broadway Avenue in Vancouver, BC is one of the busiest transit corridors in North America. TransLink is considering rapid transit alternatives for this corridor, currently served by bus lines. Nick researched the relationship between rapid transit alternatives and the busy pedestrian and commercial street and created high quality graphic visualizations to best communicate the various alternative options. These visualizations supported and clarified the narrative regarding long-term opportunities and potential impacts and risks of surface and grade-separated rapid transit options for the corridor.
- **University of Utah Bicycle Facility and Safety Study, UT**
As part of the campus Bicycle Master Plan, Nick created bicycle facility design guidelines to support the provision of safe and appropriate bicycling facilities for campus bicyclists. Clear, accessibly-written, and visual design guidance provided a reference to the school on how to integrate bikeway treatments into their complete street projects. Treatment entries included facility design considerations, maintenance issues, and provided direction to more detailed design references, standards, and studies.
- **Sullivan's Gulch Trail, Portland, OR**
The Sullivan's Gulch Trail conceptual design is a high-profile potential rail-with-trail corridor project in the City of Portland. To visualize the challenges of terrain and the impacts to trail placement, Nick created cross-section illustrations at key locations of the trail corridor. Through field work photography and 3D rendering, Nick also created high quality photo simulations of the proposed trail alignment to share the vision of the completed project with the project advisory committee and the public.



Professional Highlights

- Alta Planning + Design, 2010-
- Transportation Planning Assistant, City of Portland Bureau of Transportation, 2010-2011

Education

- MURP, Portland State University, 2011
- BFA, University of Oregon, 2002

Professional Organizations

- American Planning Association, Oregon Chapter
- Association of Pedestrian and Bicycle Professionals

Publications/Presentations

- *Intertwine Trail Use Snapshot: An analysis of Bicycle and Pedestrian Documentation Project Data from 2008 to 2010*, Metro, 2010

Other Related Experience

- Alta Planning + Design Scholarship Recipient, Initiative for Bicycle and Pedestrian Innovation (IBPI), Portland State University 2010-11

Craig Williams, AICP

Complete Streets Specialist

Craig Williams brings more than 30 years of diverse experience in transportation planning, engineering and program management, both with the Illinois Department of Transportation (IDOT) and in the private sector. Over the past two decades, a primary focus has been facilitating livable, pedestrian-friendly communities, such that residents and visitors are offered the opportunity to 'leave your keys at home', and walk, stroll or roll to life's everyday destinations.

Craig's areas of expertise include project studies and management, non-motorized (bicycle and pedestrian) planning and design, Complete Streets and Context Sensitive Design, legislation, financing, and grant programs. His transportation background includes experience with highways, public transit and railroads, historic transportation corridor studies, building rehabilitation projects, environmental analysis, public involvement, and intergovernmental coordination.

Craig has managed more than 60 projects over his career. Following are some highlights:

Highlighted Projects

- **Snelling Avenue Multi-Modal Transportation Plan, MN**
Craig is the project manager for Alta, as sub-consultants to SEH on this study to increase mobility for all transportation modes for this state trunk highway acting as a regional commercial arterial. Alta examined existing conditions for non-motorized modes and is now participating in public outreach, developing concept drawings, and completing a technical analysis of preferred alternatives.
- **Chicago Bicycle Plan 2020 Update, IL**
Alta is a key partner in the 2020 update of Chicago's highly regarded 2015 bicycle plan.
- **Chicago Make Way for Play, Chicago, IL**
Craig is part of the Alta project team working with the Consortium to Lower Obesity in Chicago Children (CLOCC) to develop a guide to improve pedestrian, bicycle, and transit access to Chicago's parks and maximize the use of the public way to promote active living. The project team is exploring strategies that range from improving crossings of busy roads around parks to creating temporary, protected play spaces on neighborhood streets and other public areas.
- **Chicago DOT Streets Policy Implementation Review, Chicago, IL**
Craig was the project manager selected by the Chicago Department of Transportation (CDOT) to identify issues, obstacles, and resources that can either assist or hinder the implementation of Chicago's new Complete Streets policy.
- **Bloomington-Normal Main Street Corridor Feasibility Study, IL**
Craig was the project manager responsible for studying Complete Streets improvements as part of a 6-mile Main Street corridor improvement.
- **LaGrange Road Transportation Corridor Plan, Orland Park, IL**
Craig was the project manager for the preparation of a 'Complete Streets' plan for LaGrange Road (US Route 45) with a focus on improving conditions for pedestrians, bicyclists, and transit use for this 6-mile corridor.



Professional Highlights

Alta Planning + Design, 2010-
Principal, LYKAH Consulting,
2009-2010
Senior Associate/Senior
Transportation Planner, T.Y. Lin
International 2007-2009
Senior Principal Planner, Edwards
and Kelsey 2000-2007
Illinois Department of
Transportation, 1977-2000
Bicycle & Pedestrian Program
Manager - 1992-2000; Highway
Planner - 1990-1992; Passenger
Railroads Section Chief - 1983-1990;
Transit Planner - 1980-1983; Traffic
Safety Analyst - 1977-1980

Education

Master of Public Administration,
University of Illinois, 1996
BA, Environmental Urban Planning,
University of Illinois, 1976

Registrations

American Institute of Certified
Planners (AICP)

Professional Affiliations

America Bikes Board, Policies and
Legislative Action Team
Association of Pedestrian and
Bicycle Professionals, Founder and
Board Member
National Committee on Uniform
Traffic Control Devices
(NCUTCD), Bicycle Technical
Committee Member
Complete Streets Coalition Trainer

Jeff Gulden, PE, TE

Associate

Jeff Gulden is a transportation engineer in Alta's Salt Lake City office. He brings a wide variety of transportation engineering experience from work in the Sacramento and Southern California regions. His areas of expertise are in traffic calming and bicycle and pedestrian planning. He has completed many successful bicycle and pedestrian planning projects and has served as a Pedestrian Safety Evaluator for the California Office of Traffic Safety. He has also completed numerous traffic-specific projects, including traffic impact studies, transportation operations using simulation software, parking studies, and master plans. He has studied both nationally and internationally and is currently involved with transportation planning research at the City and Metropolitan Planning Department at the University of Utah.

Relevant Publications

- *Traffic Engineering Handbook – Traffic Calming Chapter**
Jeff co-authored the traffic calming chapter of latest *Traffic Engineering Handbook* from the Institute of Transportation Engineers. The traffic calming chapter provides a source of proven techniques for implementing neighborhood traffic calming plans as well as selection criteria, effectiveness, and general design guidelines of traffic calming devices.
- *U.S. Traffic Calming Manual**
Jeff was a key contributor to the latest publication dedicated to traffic calming, the U.S. Traffic Calming Manual from the American Planning Association. Published in 2009, the book is the first how-to manual for traffic calming produced for the U.S. The manual provides detailed guidance on traffic calming projects, from community consensus building to implementation.

Relevant Projects

- **Brigham Young University Bicycle Master Plan, UT**
Jeff was project manager for a bicycle master plan for Brigham Young University in Provo, Utah. The study addressed the desire to increase bicycling on-campus and to connect to nearby residential areas. Recommendations were made for specific bicycle facilities, campus-wide enhancements, and bicycle-related programs. Key locations were selected for the development of detailed recommendation plans and implementation strategies.
- **Cal Poly Pomona Pedestrian Safety Study, CA***
Jeff served as lead transportation engineer for a pedestrian safety study of the California State Polytechnic University (Cal Poly), Pomona campus. As part of this work recommendations were made for specific crosswalk, roadway, and intersection improvements both on-campus and on City of Pomona roadways.
- **University of California, Riverside Pedestrian Access Study, CA***
As lead transportation engineer, Jeff completed a detailed study of pedestrian crossing locations on the University of California, Riverside campus. The outcome of the evaluation provided the University with campus-wide recommendations for the enhancement of existing crosswalk facilities.



Professional Highlights

- Alta Planning + Design, 2011-
- Fehr & Peers Transportation Consultants, 6 years
- Pedestrian Safety Evaluator, California Office of Traffic Safety, 1 year

Education

- Master of City and Metropolitan Planning, University of Utah, current
- Advanced Education in Civil Engineering, Universidad Politécnica de Valencia, Valencia, Spain, 2003
- BS, Civil Engineering, California Polytechnic State University, San Luis Obispo, 2002

Licenses

- Professional Engineer, California #C72107; Utah, #8104425-2202
- Professional Traffic Engineer, California, #TR2556

Professional Organizations

- Institute of Transportation Engineers, Member
- American Planning Association, Member

Publications

- *Traffic Engineering Handbook – Traffic Calming Chapter* (ITE, 2009)
- *U.S. Traffic Calming Manual* (APA, 2009) – contributor
- *New Traffic Calming Device of Choice* (ITE Journal, December 2009)

**Completed during previous employment*



David Elkin
Landscape Architect

**Professional
Experience**

Dave is a landscape architect and project manager for GreenWorks with 14 years of experience. Dave's responsibilities at GreenWorks consist of design and planning on a variety of project types including infrastructure, civic and institutional, recreation and open space, environmental, housing and mixed use, and urban revitalization projects. His expertise includes urban stormwater treatment, green streets, sustainable community design and development, and wetland, stream, and floodplain restoration.

Recently, Dave worked for over 3 years at the City of Portland Bureau of Environmental Services in the Sustainable Stormwater Division. During that time he focused on innovative stormwater design specifically green street and green roof design, co-taught the City's Ecoroof Seminar Series, served on the City's SWAT (Stormwater Advisory Team), designed over 120 green street facilities and implemented many new green street design details.

His specialties encompass environmental and sustainable design and stormwater treatment techniques. This includes inventory and analysis of watershed scale projects and large stormwater systems for characterization of issues and solutions related to stormwater and environmental resources. He is adept at green street design, stormwater system analysis, park planning, planting and irrigation design, GIS, and facilitation of public involvement presentations. He produces sophisticated hand-drawn renderings, computer graphics and illustrative capabilities to provide innovative alternatives for project needs. Dave received a Bachelor of Landscape Architecture from the University of Oregon.

**Professional
Affiliations /
Appointments**

Registered Landscape Architect: Oregon and Washington
Registered Council of Landscape Architects Registration Boards (CLARB)
American Society of Landscape Architects (ASLA), Member

Presentations

- Sustainable Streetscape Design Workshop, Oregon Chapter APWA Fall 2010 Conference
- "137 Green Street Facilities in 4 Days", Oregon Chapter APWA Fall 2010 Conference
- Urban Drainage, 9th International Conference
- Landscape design, Oregon Episcopal School and Vose Elementary Portland Urban Stormwater Tour
- Wetlands 101, University of Oregon and the Columbia Slough Watershed Council

Awards

BES Value Statement Award, 2010
National ASLA Professional Honor Award, Willamette Riverbank Design Notebook, 2002; ASLA Oregon Chapter, Merit Award, 2000

Relevant Project Experience

- 124th and Myslon to Tualatin-Sherwood Road Arterial Green Street
- 50th Avenue Commercial Green Street / Beaumont Village Lofts
- Albany Stormwater Code Update
- Ashland Stormwater Master Plan
- Beech / Essex CSO
- Boones Ferry Buffer Mitigation
- Boones Ferry Road Tualatin
- Capps Road
- Carollon Condominiums Creek Daylighting
- City of Portland City Hall Ecoroof Concepts*
- Legacy Parking Lot Retrofit*
- Lucky Lab Green Street*
- Marigold Green Street
- Metro LID Survey
- N Willamette and Denver Ave. Green Street*
- NE Davis Green Street*
- Oregon Zoo Stormwater Retrofit
- Portland Community College Stormwater Education Plaza*
- Sandpoint Green Streets – Sandpoint, Idaho
- SE Clay Green Street Plan*
- SW 33rd and Capitol Hwy Green Street*
- SW Troy Street Green Street*
- Tabor to River Green Street Program*
- Tabor to River Private Property Retrofits*
- Taralon Communities - Happy Valley, Oregon
- Waterfont Park Bioswale
- WES Stormwater Design Standards - Clackamas County, Oregon

* *Work completed while at Portland Bureau of Environmental Services*



Davis Street Pods



Mike Faha, ASLA, LEED
Principal Landscape Architect

**Professional
Experience**

Mike Faha is a registered landscape architect and a founding Principal of GreenWorks. Mike's primary professional interest is in creating livable, sustainable communities that balance economic, ecological, and social needs. Towards that end, Mike leads planning and design project teams which integrate urban ecology, green infrastructure, and urban design on a variety of project types. These include civic and institutional, corporate, recreation and open space, public infrastructure, housing and mixed used, and urban revitalization.

Mike is adept at working with clients, regulators, stakeholders and the public in creating projects with broad support. His prior employment with engineering, ecological and landscape architectural firms helped to propel him into a leadership role that integrates various professional disciplines, and helps clients meet broad-based community design objectives. Mike earned his Bachelor of Science degree from Oregon State University.

**Professional
Affiliations /
Community Service**

Registered Landscape Architect: Oregon
L.E.E.D. Accredited Professional: U.S. Green Building Council - Leadership in Energy and Environmental Design
Professional Affiliations / Community Service:
American Society of Landscape Architects (ASLA) Member, 1990-Present, Past President Oregon Chapter
Urban Greenspaces Institute, Board Member, 2007-2009
Green Investment Fund Grant Review Committee
Metro Nature in the Neighborhoods Grant Review Committee
Portland Stormwater Policy Advisory Committee

Presentations

"Sustainable Landscapes", OSU, 2012
"Green Stormwater Infrastructure" PNCWA, 2011
"Streetscape Design Workshop" APWA Oregon, 2010
"Green Streets: Green Infrastructure" APWA Oregon, 2009
"Urban Habitats: Urban Wetlands", PSU Engineering, 2009
"Green Streets and Innovative Stormwater Management"- GreenPrints Conference -Atlanta, Georgia 2008

Awards / Recognition

Mike Faha has received over 30 awards in the last twenty years for landscape architectural design, sustainable design, environmental enhancement, and community service.
Anderson Road Green Street, ACEC Oregon Engineering Excellence Award, Transportation Honor Award, Portland, Oregon, 2011
La Center Wastewater Treatment Plant, ACEC Oregon Engineering Excellence Award, Water and Stormwater Honor Award, La Center, Washington, 2011
Low Impact Development Approaches Handbook, Julian Award for Sustainability: APWA Oregon for Clean Water Services, 2010

Astoria Waterfront Vision Plan, Walter B. Jones Memorial and NOAA Awards for Excellence in Coastal and Ocean Management, 2010
 Paradise Visitor Center, Mount Rainier National Park, AIA People's Choice Award, 2009
 Beavercreek Road Green Street, APWA National Project of the Year, 2009
 RiverEast Center (Green Street and Plaza), ULI (Oregon – Washington Chapter) Project of Distinction, 2008; Environmental Design and Construction Excellence in Design 2008; ASLA Oregon Merit Award, 2008; APWA Oregon Chapter Julian Award for Sustainable Project, 2007
 Headwaters at Tryon Creek, ACEC Oregon Grand Award, 2008

Project Experience

- Anderson Road Demonstration Green Street
- Beavercreek Road Green Street
- Chestnut Lane Green Street
- City of Albany Stormwater Quality Standards – Albany, Oregon
- Clay Street Green Street
- Clean Water Services Low Impact Development Approaches Handbook
- Columbia Slough Stormwater Facility Siting Analysis- Portland, Oregon
- Denver Avenue Green Main Street Planning and Design
- Marigold Green Street
- Metro LID Survey - Portland, Oregon
- Oregon Zoo Parking Lot, Green Street and Stormwater Retrofit
- Portland Milwaukie Light Rail (design of 243 stormwater facilities)
- Sandpoint Green Streets – Sandpoint, Idaho
- Taralon Communities - Happy Valley, Oregon
- Tualatin 124th Avenue Green Street
- Tualatin I-5 Nyberg Interchange
- Warner Milne Green Street
- Water Avenue Green Street
- WES Stormwater Design Standards - Clackamas County, Oregon



Denver Avenue Green Main Street Planning and Design

BILLIE LOUISE BENTZEN, COMS (Certified Orientation & Mobility Specialist), Ph.D.

Director of Research, Accessible Design for the Blind

25 Village Lane

Berlin, MA 01503

508 838-2307

bbentzen@accessforblind.org

www.accessforblind.org

Education

Ohio Wesleyan University, A.B., 1959, Sociology

Boston University, Certificate, 1966, Education of the Visually Handicapped

Boston College, M.Ed., 1971, Peripatology (Orientation and Mobility)

Boston College, Ph.D., 1991, Psychology

Employment

2005-present	Director of Research, Accessible Design for the Blind, Berlin, MA
2000-2010	Adjunct Associate Professor, Department of Psychology, Boston College
1992-2005	President, Accessible Design for the Blind, Berlin, MA
1990-2000	Adjunct Assistant Professor, Department of Psychology, Boston College.
1987-present	Consultant, Architectural Accessibility for the Visually Impaired.
1980-2000	Consultant, Education of the Visually Handicapped and Orientation & Mobility.

Sponsored Research—most relevant

National Eye Institute, National Institutes of Health, "Blind Pedestrians' Access to Complex Intersections," Sub-contract to Boston College from Western Michigan University. 2007-2012.

National Institute on Disability and Rehabilitation Research, "Fundamental Issues in Wayfinding Technology," Sub-contract to Accessible Design for the Blind from Smith-Kettlewell Eye Research Institute, 2006-2009.

National Cooperative Highway Research Program, Project No.3-78, "Crossing Solutions at Roundabouts and Channelized Turn Lanes for Pedestrians with Vision Disabilities," Subcontract to Accessible Design for the Blind from North Carolina State University. 2005-2008.

US Access Board, "Technical Assistance Bulletin on Communications in Transportation Facilities and Vehicles," Sub-contract to Accessible Design for the Blind from Nelson/Nygaard. 2005-2007.

Project ACTION, National Easter Seal Society, Federal Transit Administration, "Accessible Pedestrian Signals—Curriculum Development," Consultant to Western Michigan University. 2001-2003.

National Cooperative Highway Research Program, Project No. 3-62, "Guidelines for Accessible Pedestrian Signals," Sub-contract to Accessible Design for the Blind from The University of North Carolina Highway Safety Research Center. 2001-2009.

National Eye Institute, National Institutes of Health, "Blind Pedestrians' Access to Complex Intersections," Sub-contract to Boston College from Western Michigan University. 2000-2007.

Architectural and Transportation Barriers Compliance Board (Access Board), "Detectable Warnings Synthesis," Contract to Accessible Design for the Blind. 1999-2000.

Architectural and Transportation Barriers Compliance Board (Access Board), "Accessible

Pedestrian Signals," Contract to Accessible Design for the Blind. 1997-1998.

Publications—most relevant

- Scott, A., Barlow, J, Guth, D., Bentzen, B.L., Cunningham, C. & Long, R. (2011). Nonvisual cues for aligning to cross streets. *Journal of Visual Impairment and Blindness*, 105:648-661
- Scott, A., Barlow, J, Guth, D., Bentzen, B.L., Cunningham, C. & Long, R. (2011). Walking between the lines: Nonvisual cues for maintaining heading during street crossing. *Journal of Visual Impairment and Blindness*, 105:662-674
- Barlow, J.M., Scott, A.C., and Bentzen, B.L., (2009) Audible Beacons with Accessible Pedestrian Signals. *AER Journal: Research and Practice in Visual Impairment and Blindness*, Vol. 2, Number 4, 149 – 158.
- Scott, A.C., Barlow, J. M., Bentzen, B.L., Bond, T.L.Y. and Gubbe, D. (2008) Accessible Pedestrian Signals at complex intersections: Effects on blind pedestrians. *Research Record: Journal of the Transportation Research Board*, No. 2073, pp. 94–103.
- Harkey, D.L., Carter, D.L., Barlow, J.M. and Bentzen, B.L. (2007) *Accessible Pedestrian Signals: A Guide to Best Practice*. NCHRP Web-Only Document 117A.
- Bentzen, B.L., Scott, A.C., and Barlow, J.M. (2006) Accessible Pedestrian Signals: Effect of Device Features. *Transportation Research Record: Journal of the Transportation Research Board*, No. 1982, pp. 30-37
- Carter, D.L., Harkey D.L., Barlow, J.M., and Bentzen, B.L. (2006). Development of an intersection prioritization tool for accessible pedestrian signal installation. *Transportation Research Record: Journal of the Transportation Research Board*, No. 1982, pp. 13-20.
- Scott, A.C., Myers, L., Barlow, J.M., and Bentzen, B.L. (2006) Accessible pedestrian signals: The effect of pushbutton location and audible WALK indications on pedestrian behavior. *Transportation Research Record: Journal of the Transportation Research Board*, No. 1939, pp 69-76.
- Bentzen, B.L., Barlow, J.M., and Bond, T. (2004) Challenges of unfamiliar signalized intersections for pedestrians who are blind: Research on safety. *Transportation Research Record: Journal of the Transportation Research Board*, No. 1878, pp. 51-57.
- Bentzen, B.L., Barlow, J.M. and Franck, L. (2004) Speech Messages for Accessible Pedestrian Signals. *ITE Journal*, 74-9, pp 20-24.
- Barlow, J.M. Bentzen, B.L. and Tabor, L. (2003). *Accessible pedestrian signals: Synthesis and guide to best practice*. Berlin, MA, Accessible Design for the Blind, Prepared for the National Cooperative Highway Research Program (NCHRP 3-62).
- Bentzen, B.L., Barlow, J.M. and Franck, L. (2000). Addressing barriers to blind pedestrians at signalized intersections. *ITE Journal*. 70-9, 32-35.
- Bentzen, B.L., Barlow, J.M., and Tabor, L. (2000). *Detectable warnings: Synthesis of U.S. and international practice*, Washington, DC, US Access Board.
- Bentzen, B.L. & Barlow, J.M. (1995). Impact of curb ramps on safety of persons who are blind. *Journal of Visual Impairment and Blindness*. 89:319-328.
- Bentzen, B.L.; Nolin, T.L.; Easton, R.D.; Desmarais, L. & Mitchell, P.A. (1994). *Detectable warnings: Safety & negotiability on slopes for persons who are physically impaired*. Federal Transit Administration and Project ACTION of the National Easter Seal Society.

Janet M. Barlow, COMS
Certified Orientation and Mobility Specialist
3 Manila Street
Asheville, NC 28806
mobile/work 770-317-0611
jmbarlow@accessforblind.org

Education

MS, Special Education, December 1975, Florida State University, Tallahassee, Florida
Concentration of degree program was mental retardation, hearing impairment, and other disabilities in conjunction with vision loss

BS, Special Education, Visual Disabilities, March 1973, Florida State University, Tallahassee, Florida
Education of the visually impaired, with emphasis on orientation and mobility instruction

Work Experience

10/05-present President, Barlow Design, Inc., dba Accessible Design for the Blind
3/08 - 3/09 Adjunct faculty, Pennsylvania College of Optometry, Elkins Park, PA
5/99 - 10/05 Consultant/Research Associate, Accessible Design for the Blind
7/04 - 8/04 Part-time instructor, Department of Blindness and Low Vision Studies, Western Michigan University
10/95 - 6/01 Manager, Rehabilitation Services, Center for the Visually Impaired, Atlanta, Georgia
9/94 - 12/95 Part-time Instructor, Georgia State University, Atlanta, GA
9/93 - 10/95 Manager of Independent Living Services, Center for the Visually Impaired, Atlanta, Georgia
10/92 - 3/93 Research Associate, contract with Boston College, *Cues Blind Travelers Use to Detect Streets*
9/77 - 8/93 Orientation and Mobility Specialist, Center for the Visually Impaired, Atlanta, Georgia

Certifications

Certification as Orientation and Mobility Specialist (COMS) by Academy for Certification of Vision Rehabilitation and Education Professionals, (ACVREP) 2010- 2015

Recent Projects:

National Eye Institute, National Institutes of Health, *"Blind Pedestrians' Access to Complex Intersections*. Subcontract to Boston College from Western Michigan University. 2000-2005; continued July 2007 – June 2013.

National Cooperative Highway Research Program Project 3-62 and 3-62A, *Guidelines for Accessible Pedestrian Signals*; Subcontract to Accessible Design for the Blind from University of North Carolina Highway Safety Research Center, October 2001 – November 2006, extended through 2013 for training workshops.

Federal Highway Administration *Project TOPR34, Accelerating Roundabout Implementation in the United States*. Subcontract to Accessible Design for the Blind from North Carolina State University, 2012 – 2014. Evaluation of effectiveness of rectangular rapid flashing beacon (RRFB) treatments at multilane pedestrian crossings at roundabouts.

National Cooperative Highway Research Program Project 3-89, *Design Guidance for*

- Channelized Right-Turn Lanes*, Subcontract to Accessible Design for the Blind from Midwest Research Institute, 2008 – 2011.
- National Cooperative Highway Research Program Project 3-78A, *Crossing Solutions at Roundabouts and Turn Lanes for Pedestrians with Visual Impairments*; Subcontract to Accessible Design for the Blind from North Carolina State University, February 2005 – March 2010.
- National Cooperative Highway Research Program Project 15-35, Geometric Design of Driveways. Subcontract to Accessible Design for the Blind from Urbitrans (merged with AECOM), June 2006 – May 2009.
- US Access Board. *Common Problems Arising in the Installation of Accessible Pedestrian Signals*. January - June 2009. Develop guidance bulletin with simple explanation of typical problems in installation of accessible pedestrian signals and description of potential solutions.
- Association of Pedestrian and Bicycle Professionals, *Designing Pedestrian Facilities for Accessibility* course. May – February 2008. Work with team on course revisions.
- National Cooperative Highway Research Program Project 3-72, *Lane Widths, Channelized Right Turns, and Right-turn Deceleration Lanes in Urban and Suburban Areas*, Subcontract to Accessible Design for the Blind from Midwest Research Institute, May 2003 – May 2005.
- Institute of Transportation Engineers: Easter Seals Project ACTION project, *Online Training Course on Alteration of Pedestrian Facilities for Accessibility*, September 2003 – March 2005. Subject matter expert for Module 1 and Module 4.

Recent Relevant Publications

- Salamati, K., Schroeder, B., Roupail, N.M., Cunningham, C., Long, R. & Barlow, J. (2011) Development and implementation of conflict-based assessment of pedestrian safety to evaluate accessibility of complex intersections. *Transportation Research Record, Journal of the Transportation Research Board*, No. 2264, 148 – 155.
- Scott, A.C., Barlow, J.M., Guth, D.A., Bentzen, B.L., Cunningham, C.M., & Long, R. (2011) Walking between the lines: Nonvisual cues for maintaining heading during street crossings. *Journal of Visual Impairment and Blindness*, 662 – 674.
- Scott, A.C., Barlow, J.M., Guth, D.A., Bentzen, B.L., Cunningham, C.M., & Long, R. (2011). Nonvisual cues for aligning to cross streets. *Journal of Visual Impairment and Blindness*, 648 - 661.
- Schroeder, B., Hughes, R., Roupail, N., Cunningham, C., Salamati, K., Long, R., Guth, D., Wall Emerson, R., Kim, D., Barlow, J., Bentzen, B.L., Rodegerdts, L. & Myers, E. (2011) *NCHRP Report 674: Crossing Solutions at Roundabouts and Channelized Turn Lanes for Pedestrians with Vision Disabilities*. Washington, D.C.: Transportation Research Board.
- Gattis, J.L., Gluck, J.S., Barlow, J.M., Eck, R.W., Hecker, W.F., & Levinson, H.S. (2010) *NCHRP Report 659: Guide for Geometric Design of Driveways*. Washington, D.C.: Transportation Research Board.
- Barlow, J. M. (2009) *Common Problems Arising in the Installation of Accessible Pedestrian Signals*. Washington, DC: U.S. Access Board.
- Stoloff, E. & Barlow, J.M. (2008) *Pedestrian Mobility and Safety Audit Guide*. Washington, D.C.: AARP & ITE.

Mike Lydon, CNU-A

155 Water Street, Floor 2 || Brooklyn, NY 11201

mike@streetplans.org || 917.767.9850

PROFESSIONAL EXPERIENCE**The Street Plans Collaborative, Principal || Brooklyn, NY, April 2009 - Present**

- The Open Streets Project Guide + Website
- Miami, FL 2030 Bicycle Master Plan
- Miami, FL Bicycle Action Plan
- Miami, FL Bicycle-Friendly Community Designation Application
- City of Miami, FL Health District Pedestrian and Bicycle Study
- Brighton Boulevard Context-Sensitive Plan and Technical Assistance, Denver, CO
- Allentown, PA Bicycle and Pedestrian Improvement Plan
- Westminster, CO 2030 Bicycle Master Plan
- Plan El Paso, TX Comprehensive Plan
- SmartCode Bicycle Module Calibration and Zoning Code Update, Fitchburg, WI
- Jean Lafitte, LA Town Resiliency Master Plan
- GrowSmart Rhode Island Bicycle and Pedestrian Circulation Trainings
- Oyster Bay, NY 48x48x48 Action Plan
- Bicycle City Master Plan, Gaston, SC
- Downtown Vision and Corridor Master Plan, Brunswick, ME
- Damariscotta, ME Heart and Soul Master Plan
- Denis Port, MA Master Plan

Duany Plater-Zyberk and Company, Urban Planner || Miami, FL, May 2006 – April 2009

- Miami 21 Form-Based Code, Miami, FL
- Cottonwood Mall Suburban Retrofit Master Plan, Holladay, UT
- Federal City Base Redevelopment Plan, New Orleans, LA
- Gulfport, MS Master Plan
- Lifelong Communities Plan, Atlanta, GA

Get Downtown Program, Program Assistant || Ann Arbor, MI, September 2005 –April 2006

- Assisted the Program Director with developing, coordinating and maintaining a bicycle, walking, and bus transportation program for the City of Ann Arbor.

Massachusetts Bicycle Coalition, Director of Fundraising || Boston, MA , August 2004 – August 2005

- Oversaw all fundraising efforts for the only statewide non-profit bicycle education and advocacy organization in Massachusetts.

EDUCATION + HONORS

- Selected as one of thirty-four Next American City Urban Vanguard, 2009
- Selected as one of thirty-four Next American City Urban Vanguard, 2009
- University of Michigan, Masters in Urban Planning, Physical Planning and Urban Design Concentration, 2007.
 - Co-President of the Urban Planning Student Association (UPSA) 2006-2007.
- EDAW Inc., Transit-Oriented Development Research Fellow, November 2006 – August 2007
- CNU New England Volunteer of the Year Award, 2005
- Bates College, B.A. American Cultural Studies, 2004

Anthony Tepedino Garcia

6815 SW 57 Terrace || Miami, FL

tony@streetplans.org || 305.978.6426

PROFESSIONAL EXPERIENCE

The Street Plans Collaborative, Principal || Miami, FL - April 2009 – Present

- Northwest New Community Master Plan, El Paso, TX, SmartCode Application
- Bayfront Parkway, Miami, FL, Tactical Urbanism Pop-up Park
- El Paso, TX Plan El Paso TX Citywide Bicycle Atlas, Handlebar Survey
- Brighton Boulevard, Denver, CO, Context-Sensitive Street Design Plan and Technical Assistance
- Mission Valley Infill Master Plan, El Paso, TX, SmartCode Application
- Westminster, CO 2030 Bicycle Master Plan Project website
- El Paso, TX Plan El Paso - Comprehensive Plan
- City of Miami, FL Health District Pedestrian and Bicycle Study, Handlebar Survey
- Fitchburg, WI SmartCode Bicycle Module Calibration, Handlebar Survey
- El Paso, TX Plan El Paso TX Comprehensive Plan Charrette
- El Paso, TX Plan El Paso: Website, Public Outreach Tool
- El Paso, TX Connect El Paso: BRT/Transit Oriented Development Master Plan
- El Paso, TX Connect El Paso: Website, Public Outreach Tool
- Miami, FL MiMo - Biscayne Boulevard Streetscape Analysis
- Cambridge, MA Somerville Transportation Management Association Study
- Miami, FL Virginia Key Master Plan
- Greenville, SC Stone Avenue Corridor Project Website
- Miami, FL Urban Environment League Website

Chael, Cooper & Associates, Project Director || Coral Gables, FL - January 2005 – April 2009

- South Miami, FL LEED GOLD Chael-Dover Cottage
- Miami, FL Calle Ocho Mixed-Use Development
- Miami, FL Biscayne Shores Mixed-Use Development
- Hali'i'maile, HI Hali'i'maile Architectural Standards

Dover, Kohl & Partners, Town Planner || Coral Gables, FL - January 2005 – April 2009

- Miami, FL UM Miller School of Medicine/Health District, Urban Design & Architecture Standards
- Miami, FL Carrollton School Master Plan Zoning Analysis, and Architectural Design
- Charleston, SC Long Savannah Architectural Standards

TransitMiami.com, Editor/Publisher || Miami, FL - March 2008 – Present

- Publisher of online journal of transit and urban planning issues in South Florida.
- Responsibilities include organizing staff of volunteer writers, performing web design work, hosting community events, and meeting with transportation planners and elected officials.

EDUCATION + HONORS

- Urban Environment League Orchid Award for Transit Commentary, 2011
- University of Miami School of Architecture, Masters of Architecture, 2005
- University of Miami School of Architecture, Rome Program for City Planning, 2003
- Harvard University, Graduate School of Design Summer Architecture Program, 2002
- New York University, B.A. Urban Planning & Architecture, 2002.
 - Honors thesis concentration in Modern Cuban Architecture, from 1920 – 1959

PAUL CARLOS
Pure+Applied
1123 Broadway, No. 917
New York, NY 10010
212.929.9449
pureandapplied.com

- Aug 01 to present Co-Principal, Pure+Applied
CLIENTS: Abrams Books; Center for Architecture/AIA; The Cooper-Hewitt; Institute for Transportation and Development Policy; The Jewish Museum; Museum of Modern Art; Museum of the City of New York; National Building Museum; NYCDDC; NYCDPR; NYCDOT; New York Philharmonic; New York Public Library; Organization of American States; Prospect.2 New Orleans; Yeshiva University Museum
- Jan 99 to Jul 01 INTERIORS MAGAZINE
Art Director: Guided the complete redesign of *Interiors* magazine within five weeks. Art direction and design of layouts; commissioning photography and illustration; editorial input; and managing assistant art director's duties for monthly interior design magazine. Other design responsibilities include printed collateral relating to the magazine; supervising and producing exhibition and multimedia presentations involved with the magazine; overseeing photography budget; and coordinating pre-press and press-run supervision with production team and assistant art director.
- Jan 95 to Dec 98 DESIGN/WRITING/RESEARCH
Design Associate: Worked primarily with J. Abbott Miller (Principal). Chief responsibilities included: Art direction and design for small, independent multi-disciplinary design studio. Projects included: magazines, exhibition catalogues, books, exhibitions, signage systems, performance subtitles, posters, and advertisements for mostly cultural and arts organizations. Major clients included: Museum of Modern Art (NY), Solomon R. Guggenheim Museum, Davis Museum at Wellesley College, *Architecture Magazine*, *Grand Street Journal*, Bulfinch Publishing, *Rolling Stone*, and Dance Ink Foundation. Coordinated production and budgetary needs for projects. Supervised pre-press production, photoshoots, press-runs and exhibition and signage fabrication. Liaised with clients on a day-to-day basis. Supervised junior designers.
- Sep 93 to Dec 94 DONOVAN AND GREEN (MARCH 1ST)
Senior Designer: Worked principally with Marge Levin (Design Associate), Nancye Green and Michael Donovan. Art direction, design, and production of corporate brochures systems for American Express Cardmember Services. Designed formats, brochures, and logos for clients including and Liberty Science Center, Sony Corporation, and the Schubert Organization.
- Dec 92 to Aug 93 CORPORATE GRAPHICS INTERNATIONAL
Senior Designer: Worked with Bennett Robinson (Partner); Formulated designs and concepts for annual reports and corporate collateral. Hired and supervised illustrators and photographers.
Junior Designer: Assisted in designs for annual reports, capabilities brochures, and magazines. Responsibilities included production of comps, presentations and mechanicals under time-critical situations; Supervised press-runs.

Sep 91 to Nov 92 THE COOPER UNION CENTER FOR DESIGN & TYPOGRAPHY
Assistant Designer: Responsible for layouts and mechanicals for school publications (i.e. newsletters, questionnaires, signage and invitations), as well as working with The Center for Design's pro-bono clients. Contributed pro-bono work for the clients of The Center as part of the senior-year design curriculum.

TEACHING

1997 to present PARSONS THE NEW SCHOOL FOR DESIGN
2003 & 2006 THE COOPER UNION SCHOOL OF ART
1998 TO 2004 MARYLAND INSTITUTE, COLLEGE OF ART
1992 THE COOPER UNION SUMMER PROGRAM
1991-1992 THE COOPER UNION SATURDAY PROGRAM

TALKS + LECTURES

2003 MARYLAND INSTITUTE, COLLEGE OF ART
New York Magazine Night. Three New York art directors: Paul Carlos, Luke Hayman, and J. Abbott Miller discuss their work and the changing field of magazine design.

2002 SCHOOL OF VISUAL ARTS, NEW YORK CITY
MFA IN DESIGN PROGRAM
Interiors Magazine Talks. Julie Lasky, editor-in-chief and Paul Carlos, art director, discuss the roles and interaction of the editor and art director.

PANELS

2000 PHOTO DISTRICT NEWS ANNUAL DESIGN & PHOTO COMPETITION
2000: Selected to judge in the annual *Photo District News* annual competition of design and photography.

1999 SPD 34 (SOCIETY OF PUBLICATION DESIGN)
Judge for the annual Society of Publication Designers competition.

EXHIBITIONS

2001 ART DIRECTORS CLUB, NY | YOUNG GUNS 3 | NYC
Chosen by a selection committee for the third biennial exhibition of young New York art directors.

1994 PARSONS SCHOOL OF DESIGN
Godzilla. Invited to participate in an exhibition of the work of *Godzilla*, an Asian-American art collaborative.

EDUCATION

1991 THE COOPER UNION
FOR THE ADVANCEMENT OF SCIENCE & ART
School of Art, New York, NY
Bachelor of Fine Arts

CURRICULUM VITAE Urshula Barbour
Pure+Applied
1123 Broadway, No. 917
New York, NY 10010
212.929.9449
pureandapplied.com

Aug 2001–present Co-Principal, Pure+Applied
CLIENTS INCLUDE: Architecture for Humanity; Center for Architecture/AIA; The Cooper-Hewitt; The Cooper Union; Hudson River Powerhouse Group; Institute for Transportation and Development Policy; The Jewish Museum; Museum of Modern Art; Museum of the City of New York; National Building Museum; NYCDDC; NYCDPR; NYCDOT; New York Philharmonic; New York Public Library;

TEACHING
Jan 05–present Adjunct, Parsons the New School for Design
2006 Adjunct, The Cooper Union
Jan 02–2005 Adjunct, City College, CUNY

ADVISING
Feb 2010–present Advisory member of the Bronx High School for Visual Art CTE Self Study Group,
Bronx High School for Visual Art

ARTICLES
2004 *Arms and the Mandate: 'Less-Lethal' Weapons Promise to Keep the Peace with Minimal Bloodshed. Is It All Smoke and Mirrors?* I.D. magazine, 2004
2003 *Charge of the Light Brigade: Crye Associates is Redesigning Combat Gear for an "Army of One."* Not Bad for Ten Young Civilians, I.D. magazine, Sept–Oct 2003
2003 *Adulterated Signage*, Print magazine, Jul–Aug 2003
1999 *Ending the Vicious Cycle of 'All-Consuming' Poverty by Initiating the Virtuous Cycle of Asset Accumulation*, SENSES, Albany, NY
1999 *Model Feeding Programs: A Guide to Innovative Community Food Programs Including: Emergency Feeding, Prepared and Perishable Food Recovery, Food Buying Clubs & Co-ops, Growing Food, Public Policy Advocacy, & Working in Coalition*, SENSES, Albany, NY

CONFERENCES & LECTURES
Nov 2009 *Broadwalk: Exploring Public Space and the Integration of Pedestrians, Bikes and Cars on the World's Most Famous Street*, NYASLA
Jul 2009 *The Global Polis Workshop: Education Infrastructures*, Center for Architecture / AIANY
Jun 2008 13th Annual NeoCon Class, NeoCon Furniture Fair
Nov 2001 Feminist Art & Art History Conference, Columbia University
Feb 2000 American Comparative Literature Association, Yale University
Nov 1999 Mid-Atlantic Popular Culture Association, Penn State University
Oct 1999 Feminist Art & Art History Conference, Columbia University
Oct 1999 *A Re-evaluation of Race at the End of the Millennium*, Tufts University

EDUCATION
1999 MASTER OF LIBERAL ARTS
Graduate Faculty, The New School for Social Research, New York, NY

1999 WOMEN & PUBLIC POLICY FELLOWSHIP
Center for Women & Government, SUNY, Albany

1994 MASTER OF FINE ARTS
Graduate School of Design, University of Pennsylvania, Philadelphia, PA

1991 BACHELOR OF FINE ARTS
The Cooper Union for the Advancement of Science & Art, New York, NY