Ninth Avenue Bicycle Path & Complete Street

2008 ITE Transportation Planning Council Best Program

Office of Alternative Modes
Traffic Operations Bureau

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ITE Annual Meeting & Exhibit
Anaheim, CA
Project Background

- Building a **Citywide Bicycle Network**: 1997 Bicycle Master Plan
- Pedestrian Safety
- 2006 Bicycle Fatality Study - Improve Safety
- Mayor’s PlaNYC – A Greener Transportation Network - 2007
Design Approach

1. Study Best Practices
2. Interpret Standards & Guidelines to Constrained NYC Environment
3. “Complete Streets” Design Philosophy
Pre-Project Configuration

Cyclist Experience – Poor
• No Bicycle Facility
• Close overtaking by motorists
• Turning conflicts

Pedestrian Experience – Fair
• Pleasant Sidewalks
• Wide Street
• Turning Vehicle Conflicts
• Long Crossing Distance (70’)

Motorist Experience – Acceptable
• Congestion is Low
• Turning Vehicles Block Thru Lanes While Yielding
Complete Street Design Objectives

A **Safe** and **Comfortable** Street for All Users:

1. Higher quality cycling experience for all levels
2. Secure and pleasant pedestrian experience
3. Safe turning movements
Ninth Avenue Geometric Design

- Bicycle lane between sidewalk and parked vehicles
- Concrete pedestrian refuge islands at intersections
- Dedicated turn bays where turns cross bicycle path
1. Higher quality cycling experience for all levels

**Standard Bicycle Lane Designs**
- Bicycle lane between moving lane and parking lanes
- Susceptible to motor vehicle intrusion
- Little sense of safety and comfort on busy streets
- Few benefits to pedestrians
1. Higher Quality Experience for Cyclists of All Levels

Fully Protected On-Street Bicycle Path
- Parking Protects Bicycle Lane from Double Parking Intrusion
- Signal Phases Protect Cyclists from Turning Vehicles
1. Higher Quality Experience for Cyclists of All Levels

Attracting New Cyclists

- 9 months after completion, cycling up 40%
- 12 hour weekday
  - 780 cyclists before
  - 1,100 cyclists after
- Sidewalk cycling down
2. Secure & Pleasant Pedestrian Experience

- Pedestrian Refuges Shorten Crosswalks
- Greener Streetscape
- Conflict-Free Crosswalks on Side Streets
2. Secure & Pleasant Pedestrian Experience

Concrete Refuge Island Design
2. Secure & Pleasant Pedestrian Experience
3. Safe Turning Movements

- 9 in 10 NYC Cyclist Fatalities Occur at Intersections
- Turning Crashes are Major Source of Pedestrian Serious Injuries and Fatalities
- Turning Conflicts are Could be Exacerbated by Bike Lanes Placed Behind Parking Lanes

Ninth Avenue Before
3. Safe Turning Movements

Configuration After Project
- Left Turn Bays
- Signal Protected: Bicycle and Pedestrian Crossings Conflict-free
- Clear & Stress-free Left Turns
3. Safe Turning Movements: 9th Avenue Signalization

Before Complete Street Redesign

Phase 1 - Major: Left turning vehicle conflicts

Phase 2 - Minor

After Complete Street Redesign

Phase 1 - Major: Left turning vehicles held

Phase 2 - Major: Bicyclists & Pedestrians held

Phase 3 - Minor
3. Safe Turning Movements
Pedestrian Experience
  Very Good
  – Shortens crosswalks by 20’ or more
  – Greener streetscape

Cyclist Experience
  Excellent
  – Fully protected bicycle path
  – Bicycle signal phases

Motorist Experience
  Very Good
  – New left turn lanes
  – Parking loss at left turn lanes
Project Challenges

- Unfamiliar Configuration & Rapid Installation
- Motorist Compliance
- Sanitation Access
- Emergency Vehicle Access
- Curbside Access & Parking Impacts
Conclusion: Success Worth Replicating