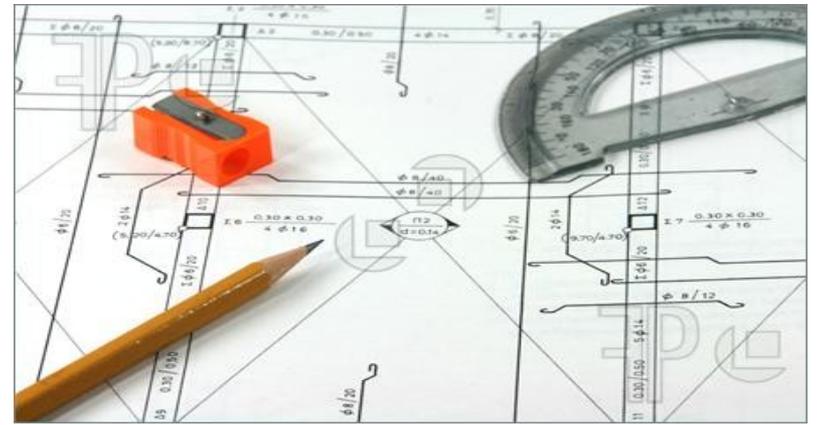
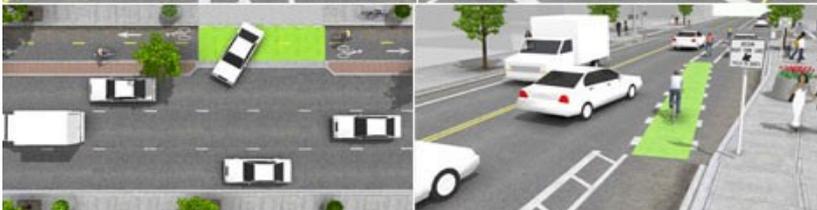




Bicycle Transportation Budget Plan: Lawrence, KS



Bicycle Objectives

Lawrence Planning Documents

- Establish a dedicated funding plan to complete the implementation of a bikeway system plan, and for maintenance of the region's bicycle facilities.
- Prioritize and implement critical bikeway segments that provide continuity for the system and provide connections to major activity centers: shopping areas, schools, KU campus, etc.



Bicycle Accomplishments

A soon to be complete circumferential loop



Bicycle Accomplishments

Principle bicycle supportive policies

- Lawrence Complete Streets Policy of 2012
- Inclusion of bicycle lanes on all new and reconstructed arterials and collector streets
- Inclusion of bicycle lanes in certain instances of street mill and overlay
- Administrative shift in 2000 of bicycle projects from Parks & Rec. to Public Works Dept.
- Seventeen bicycle planning documents since 1976

Bicycle Accomplishments

Bicycle lanes on select segments of the
Bicycle Works Program of 2001

**9th St, Kentucky to
Mississippi St.**



Mike Yoder: Lawrence J.W.

East 15th Street



Bicycle Accomplishments

Transportation corridor serving
employment and population centers

Burroughs Creek Trail



Bicycle Accomplishments

Neighborhood intersection calming
for bicycle-pedestrian safety

Barker & 19th St.



Goldfield & Eldridge St.



Evolution of Lawrence Bicycle Facilities

Beginning in the mid 1970's, Lawrence's bicycle infrastructure progressed through four phases.

Initial phase: "bicycle route" signs on streets, & 5-foot wide asphalt "trails" through several parks

Second phase: bicycle lanes only if they fit in certain street's cross section

Third phase: 10 foot wide concrete side paths along major auto projects and in new parks, primarily Federally funded

Fourth phase: purposeful projects on selected streets for traffic calming or complete streets

Bicycle Transportation Effectiveness

Unfortunately, many of these bicycle facilities are ineffective for transportation purposes.

- Bicycle route signs generally provide little guidance to a chosen destination.
- Unprotected bicycle lanes or shared lanes are generally not granny or child friendly.
- Side paths serve discretionary recreation users in remote circumferential areas or loop parks more often than essential transportation users.
- Projects are frequently sited because a street is an easy retrofit, physically or financially, instead of by origin-destination needs.

Main Bicycle Transportation Components

Right sizing roads



Bicycle boulevards



Main Bicycle Transportation Components

Two way bicycle tracks



Protected bicycle lanes

Main Bicycle Transportation Components

Roadway geometrics

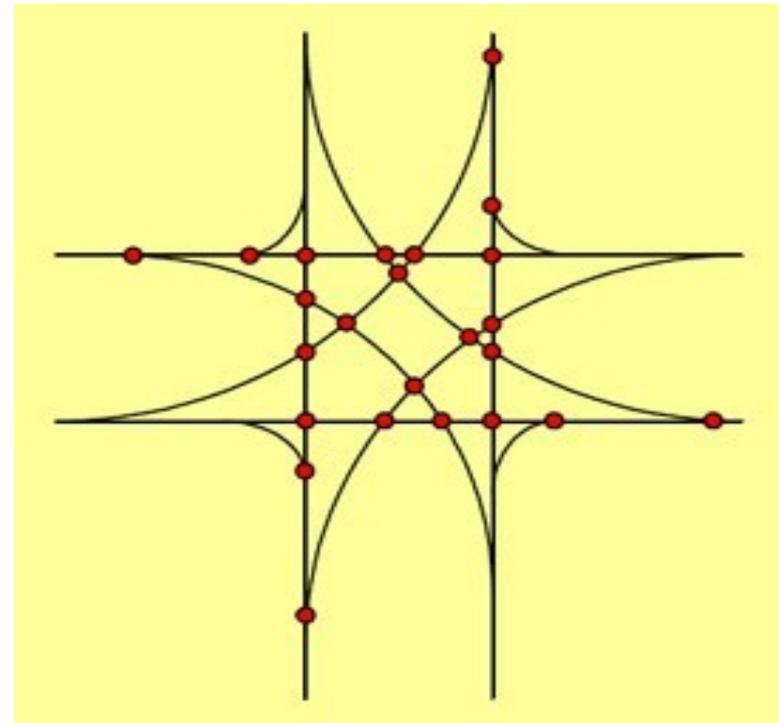


- 95% of cyclists need a dedicated travel space separate from motorists.
- Efficient travel means few stops. 25% more energy, and 33% more time is required to regain speed from a full stop.
- Efficient maneuverability requires gentle curves, less than 5% slope, and a debris and defect free surface.

Main Bicycle Transportation Components

Intersection management

- A two-lane by two-lane intersection has 32 motorist conflict points.
- Include bicycle lanes in all directions, and the conflict points about double.
- Regardless of how protected are bicycle lanes or tracks, vulnerability and accidents mostly occur at the intersections.



Cyclist-Motorist Shared Space is Unsafe and Intimidating

Average person won't consider cycling there



Nick Falbo, Alta Planning,
Portland OR

Protected Bicycle Lanes

Cyclists buffered by green strip or parking



Nick Falbo, Alta Planning,
Portland OR

Intersection Conflicts are the Crux of the Problem

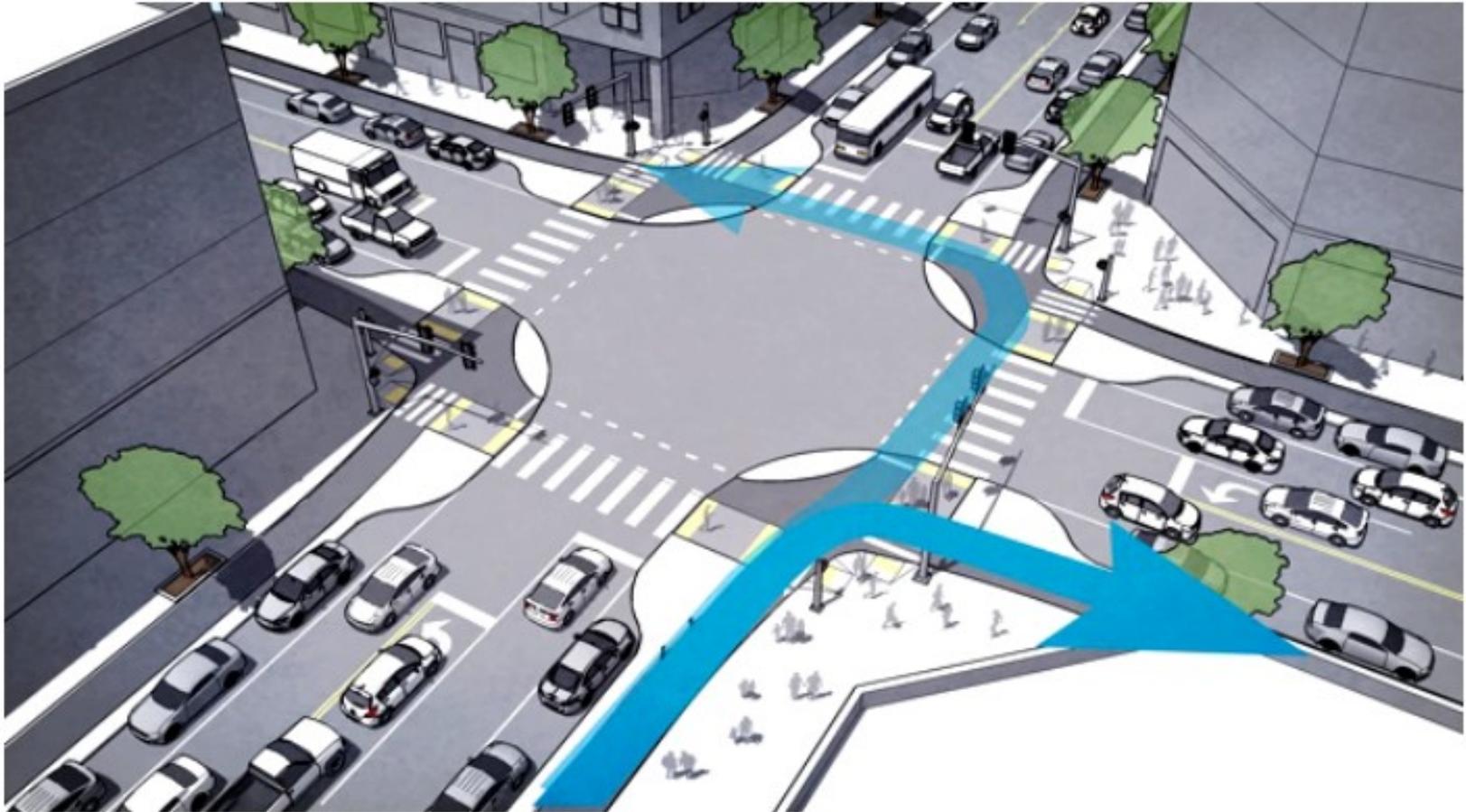
Bicycle lane benefits are negated at intersections



Nick Falbo, Alta Planning,
Portland OR

Protected Intersection

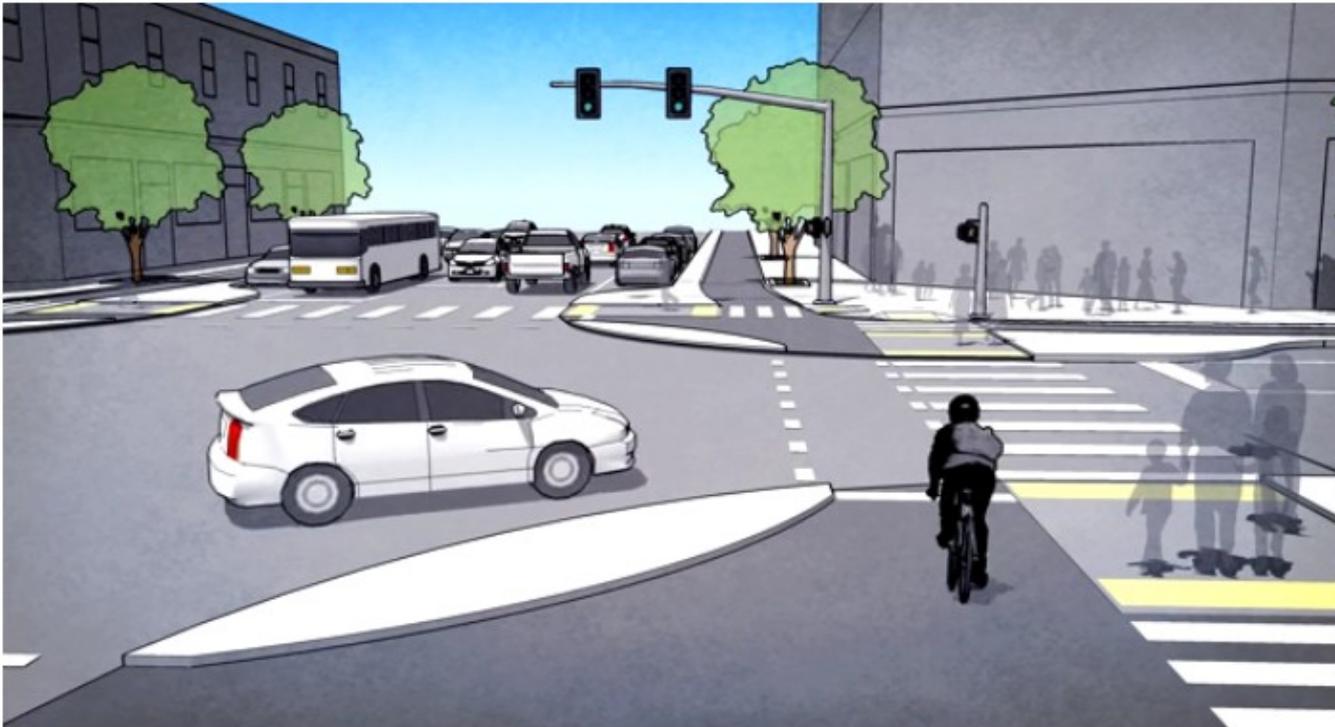
Avoids conflicts using visibility, enhanced reaction time, and predictable movements



Nick Falbo, Alta Planning,
Portland OR

Protected Intersection: Larger Turn Radius

Key element is the large-radius protective barrier extending into the intersection



Turning motorist becomes perpendicular
to bicycle lane for visibility

Nick Falbo, Alta Planning,
Portland OR

Bicycle Boulevards: AKA Bike/Walk Streets



- Shared streets, made safe and convenient for cyclists of all ages and skill levels.
- Bicycles given priority on streets reconfigured for low speed, low volume, and low stress.
- Designed with few or no stops for cyclists.
- Minimum of two miles long, they are trunk lines connecting major destinations.

Bicycle Boulevards: AKA Bike/Walk Streets

Key design elements

Speed reduction

Motorist volume reduction
by access control



Wayfinding signs

Tools for the Toolbox: Bicycle Engineering Division

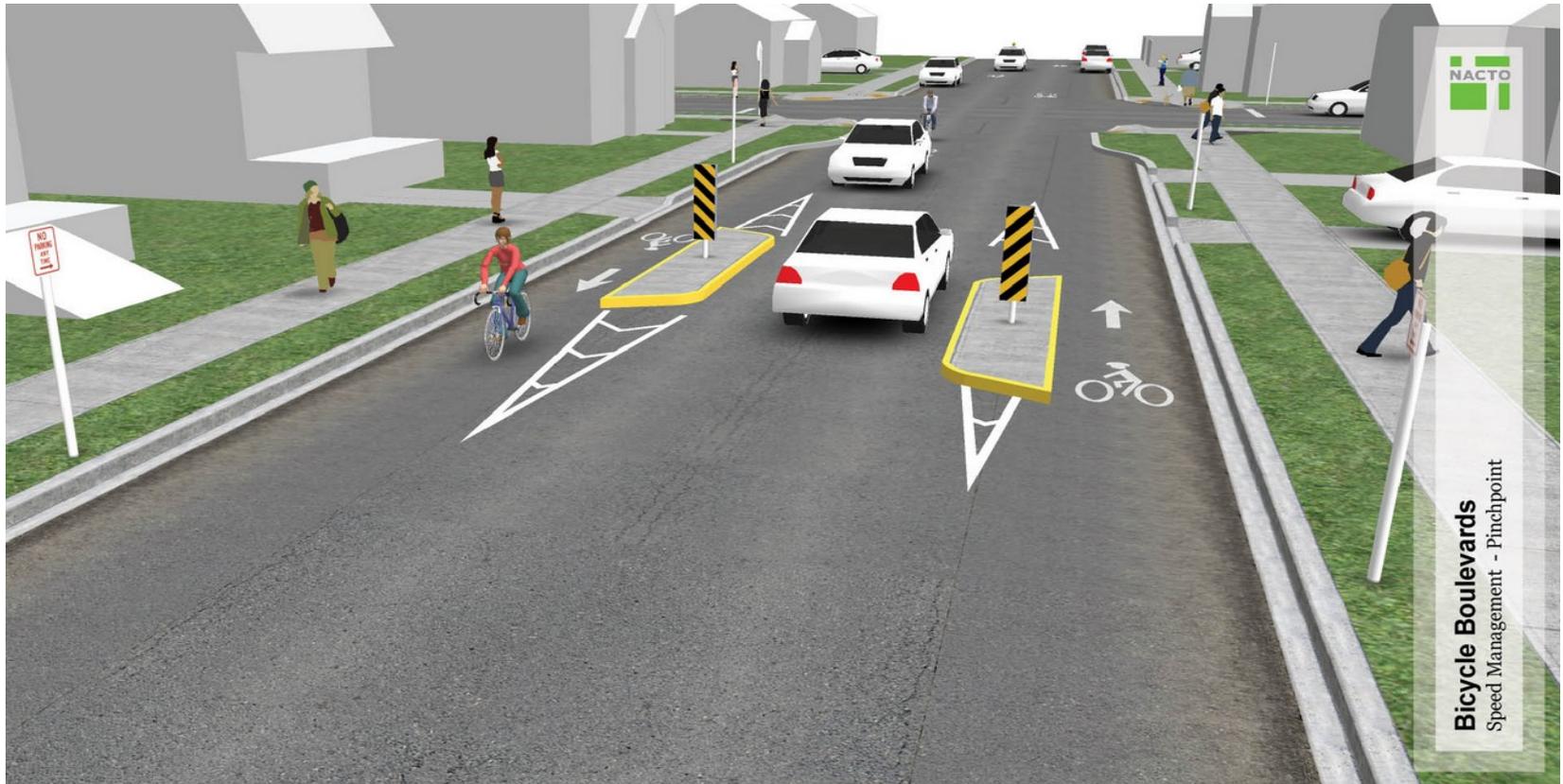
The main tools currently used by the City Engineer and the Traffic Engineer are:

- Bike route signs, center islands, painted lanes and sharrows, traffic circles, roundabouts, vertical deflection devices, and multi-use rec paths.
- A good start, but there are so many more innovative tools that can be used.



Tools for the Toolbox: Bicycle Engineering Division

Speed management: Auto Pinch Point



NACTO National Association of City Transportation Officials

Tools for the Toolbox: Bicycle Engineering Division

Speed management: Curb chicanes



Tools for the Toolbox: Bicycle Engineering Division

Volume management: Diagonal Diverter



NACTO

Bicycle Boulevards
Volume Management - Diagonal Diverter



NACTO National Association of City Transportation Officials

Tools for the Toolbox: Bicycle Engineering Division

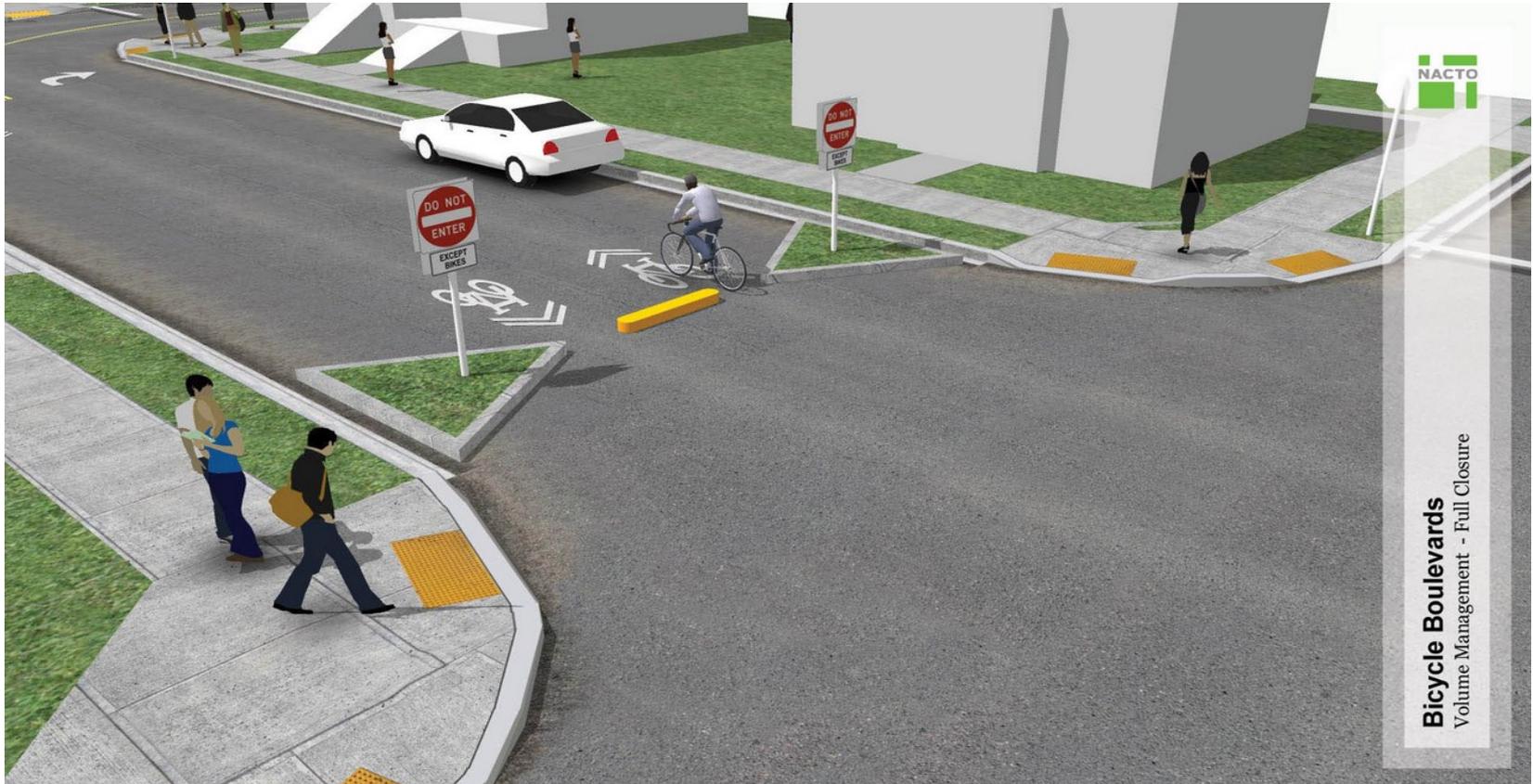
Volume management: Right-in Right-out



NACTO National Association of City Transportation Officials

Tools for the Toolbox: Bicycle Engineering Division

Volume management: Full Auto Closure



Bicycle Boulevards
Volume Management - Full Closure



NACTO National Association of City Transportation Officials

Tools for the Toolbox: Bicycle Engineering Division

Volume management: Partial Auto Closure



National Association of City Transportation Officials

Bicycle Funding Concerns

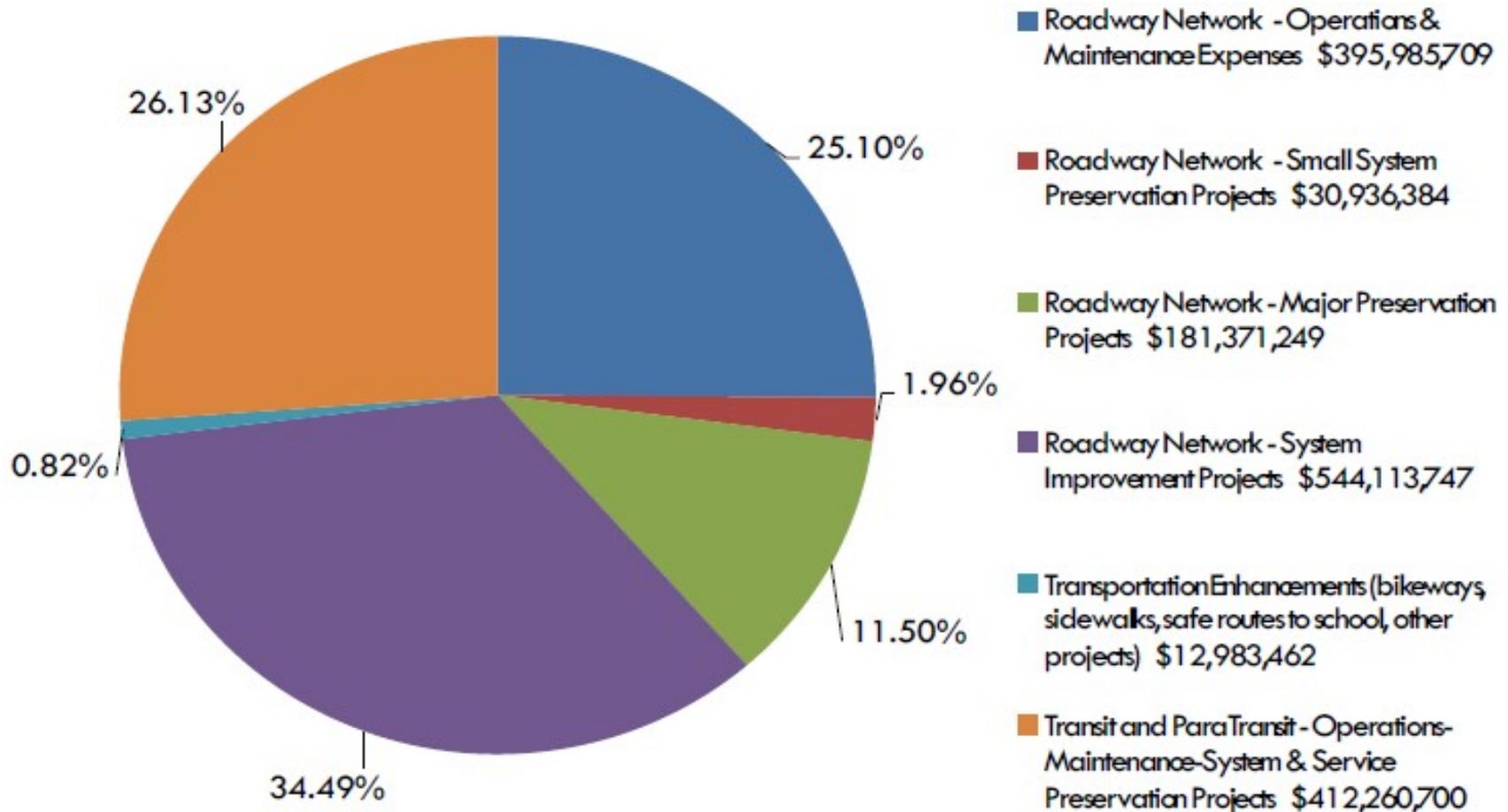
When faced with bicycle funding needs, Lawrence frequently has chosen “low-cost, no-cost” options.

- Motor vehicle needs are given higher priority, because bicycles have been viewed as recreation more than transportation.
- More substantive bicycle facilities go mostly unfunded, unless piggybacked on auto projects.
- Near exclusive reliance on bicycle grant funding sets priorities by expediency rather than origin-destination transportation needs.
- In older neighborhoods where there's the highest user rate, bicycle-safe street modifications are avoided because of perceived greater costs.

T2040 Financing Plan

Total Transportation System Funding for the
2012-2040 Period by Funding Type

\$1,577,651,251



Bicycle Funding Analysis

T2040 Transportation System Funding
projections for 2012-2040: \$1,577,651,251

- 0.82% for bicycles AND pedestrian projects
average per annum (T.E.): \$463,695
- Motorist network construction & maintenance
average/annum (excl. transit): \$41,157,396
- Lawrence funds availability – Sales Tax for
Transportation, Special Alcohol Tax, Gas Tax,
Public Parking Enterprise Fund, approximate
per annum: \$20,000,000
- Politically tough mil levy increase

Bicycle Funding Request

Capital Investment

Real Estate Capital

Reallocate public pavement for bicycle tracks, protected lanes, and bicycle boulevards

Creative Staff Capital

Create a "Bicycle Engineering Division" within the Public Works Dept. Hire a "Bicycle Division Manager" to implement build-out.

Financial Capital

Create a bicycle line item of \$2 million/year or 10% of available motor vehicle funds, and allocate 6% of FHWA project funds to bicycles.

It's not rocket science



Thank you
very much



Michael Almon



Sustainability Action Network

Local Solutions for Transition to a Sustainable Economy